GOING BENEATH THE SURFACE:

THE ROLE OF KNOWLEDGE IN AESTHETIC APPRECIATION AND SUSTAINABLE MATERIAL SELECTION

A Thesis

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Susanne Josephine Gruening

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ABSTRACT

One of the barriers to successful sustainable design practices is the lack of an appropriate value-fit attributed to sustainable building materials by the users of the built environment or by the designers who create those spaces. While there have been significant advances in the various types of sustainable building products and the number of choices available, a new approach to furthering their desirability in hopes of increasing the use of sustainable materials is explored in this study. To start, an analysis of a new aesthetic theory is made, adapting the principles of a cognitive aesthetic experience to influence aesthetic appreciation of wall surface materials through evaluation beyond the traditional emphasis on beauty and intuition. Primarily, the theories of John Dewey, Martin Seel, Benedetto Croce, and others, are synthesized to formulate a method of promoting an aesthetic experience through the addition of knowledge.

Using the principles of a cognitive aesthetic experience, a questionnaire was developed to test the hypothesis that aesthetic appreciation can be influenced by the addition of information. Specifically, that aesthetic value is higher for materials with greater sustainable quality than for materials of low sustainable quality when knowledge regarding the sustainability is provided. The same six item Likert scale questionnaire was used to gauge nine wall surface materials which consisted of three materials each of natural, somewhat natural, and not natural looking materials which crossed three levels of sustainability from low to high. The 127 participants from interior and architectural design and non-design fields were provided with either one of two types of information or no information regarding the sustainability quality of each material.

Based on the analysis of the aesthetic response data, it was determined that in general, information did positively influence the aesthetic value of the more sustainable materials, and did

negatively influence the value of the less sustainable materials. However, contrary to the extended hypothesis and aesthetic theorists, the paragraph form of information provided was not as influential as the fact chart information format, which resulted in a more accurate value-fit of the materials. Upon further analysis, it was also determined that the relationship of information level and sustainability ratings based on aesthetic responses was only statistically significant when in interaction with participant field and material look, or participant field and experience level. These analyses showed that the accuracy of the sustainable material to aesthetic value was significantly lower for designers based on material look, where natural looking materials always rated higher and not natural looking materials always rated lower, regardless of sustainability rating. Also, while experience level was not significant for designers, for non-designers with the most years of experience, sustainability qualities as provided in the information did not affect aesthetic rating. These results suggest that designers are still easily swayed by visual cues, and that those who are more likely to have less sustainable knowledge and awareness, such as the more experienced non-designers, do not count sustainability as a factor of aesthetic appreciation or desirability. Overall, this study provides evidence that a more appropriate value-fit of sustainable materials can be achieved by presenting information to the viewers, with the potential to influence the demand and thus the supply of sustainable building materials.

BIOGRAPHICAL SKETCH

After an upbringing rich in outlets of intellectual and artistic expression, Susanne J. Gruening received her Bachelor of Fine Arts degree from Syracuse University in Interior Design in 2008. It was with interior design that she found a balance for creative thinking and a natural eye for detail and order. After exploring hospitality, retail, facilities, and residential design through professional experience, Susanne realized that without knowledge and effort, sustainable practices were not second nature in the design field. Determined to expand the focus on sustainability in the built environment, she returned to school at Cornell University in 2010 to pursue a Master of Arts in Sustainable Design Studies within the Department of Design and Environmental Analysis. With expanded resources of practicing, promoting, and advocating for sustainability, she hopes to return to the field of architectural and interior design to provide and collaborate on innovative sustainable design solutions.

Dedicated to my parents – Rainer and Evelyn, and to my sister – Katja

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INTRODUCTION

Based on a new cognitive aesthetic theory and its application to design objects, this study explores the concept of a "sustainable aesthetic". This is accomplished through a controlled experiment where a selection of wall surface materials is presented to test subjects for aesthetic assessment. That the process toward achieving aesthetic experience requires elements of intellectual stimulation beyond the visual qualities of an object to further the viewer's interaction from mere intuitive reaction and to develop a process past perception, environmental information regarding the object's production will be introduced to investigate if such knowledge of things unseen increases the quality of the response of things seen.

1.1 Research Question and Hypothesis

With these intentions, this study is formulated in regards to the following problem statement, research question, and hypothesis:

Problem Statement: Sustainable building users are often unaware that building materials are indeed sustainable, resulting in a lack of appreciation and loss of a potential value-fit of sustainable features, and a minimization of the demand for designers to specify such materials.

Research Question: Does latent referenced aesthetic appreciation of architectural materials, as instilled by sustainable characteristics, affect manifest reference responses to those same materials in terms of their desirability?

Hypothesis: Aesthetic value is higher for materials with greater sustainable quality than for those of low sustainable quality when knowledge regarding latent sustainable qualities of the material is provided, and is higher when that knowledge is provided in narrative form versus fact chart and is higher for some information versus no information.

This hypothesis, in other terms, predicts that aesthetic value, as influenced by knowledge of latent references, subsequently affects desirability in direct relation to materials' qualities of sustainability.

1.2 A Conceptual Framework

Overall, this study attempts to demonstrate how intellectual stimulation in relation to design objects can be a method of creating the potential for enhanced aesthetic experience. Once an understanding and ultimate experience of the sustainability characteristics of each object is accomplished, the viewer will have the ability to make an informed decision of like vs. dislike of the object based on substantial aesthetic and cognitive principles rather than the common reliance on intuition and beauty. Through the process of having an experience, the viewer will be equipped to separate their hedonistic desire for visual beauty from an overall assessment of aesthetic value, attributing a greater sense of like and appreciation to the more sustainable objects. As Beardsley (1981) asserts, this should be possible: "Aesthetic likings and dislikings have causes, we may assume, just as do all other psychological states, including believings and disbelievings. But it is sometimes possible to change our beliefs by giving reasons, that is, by making assertions and providing evidence for them…" (p. 487).

In order to test and prove the theoretical basis on which the philosophical redefinition of aesthetics is based and to emphasize the development of a true aesthetic experience, a method of empirical research was developed, some of it based on previous research studies. However, the few studies found to be of a similar nature lacked the philosophical component necessary to fully understand aesthetic responses. For instance, in a study described by its researchers to be looking at the effects of information on aesthetic responses, participants were introduced to a work of art accompanied by stylistic information (title and visual style) and mood information (artist's phrase) (Cupchik, et.al., 1994). Five seven-point scales were used to measure "affective (pleasing, powerful), cognitive (challenging, interesting), and contextual (personally meaningful) judgments" during pre- and post-tests. (Cupchik, et.al., 1994, p. 64-65). The study did find effects in these scales, where participants found the works more powerful, personally meaningful, interesting, and challenging at the post-test after having written an interpretive reflection statement regarding the work. While this study explored similar concepts in an attempt to quantify aesthetic responses, the discussion of what the term aesthetic means was not provided, although it was implied by the categories of variables being measured. Because of this, this study's contribution to the field of aesthetics is limited. However, it does provide positive evidence that a Likert scale is appropriate for measuring responses to an object and information presentation and that such a value can be quantified in such a way.

Another study, looking at the influence of art work titles on aesthetic experiences introduced participants to art works with either no title, a descriptive title, or an elaborative title, asking them to rate it on a six-point Likert scale (Millis, 2001). The scale measured levels of understanding the work's meaning, enjoyment, interest, evocation of emotion, and elicitation of thought. As noted in the results of this study, all of the qualities measured were grouped as a

reflection of aesthetic experience, except for understanding, which was thought to reflect coherence. While this was justified empirically by the researcher, it was also claimed that there was a theoretical basis for doing so, yet such evidence was not provided. Suggesting such a theoretical basis implies an exploration into aesthetic theory. Regardless, the study does provide evidence that an elaborative title, or metaphoric, condition resulted in a higher 'aesthetic experience' rating than the no title or descriptive title conditions. However, it was found that title type did not affect understanding of the work, which indicates an impoverished aesthetic experience in terms of the more contemporary definitions of aesthetics. Millis' study does not account or allow for a development towards an aesthetic experience which should have heightened understanding.

There are also other studies which rely on a truncated aesthetic or those which maintain the traditional idea of aesthetics in relation to the natural environment by suggesting that environmental preferences can be mapped in order to develop a guide for developing visually pleasing environments (Kaplan, 1987). While these studies help to formulate the measures for the current research, their methods need to be altered to properly apply to the new aesthetic definition.

The redefinition of aesthetic experience, the center of the theoretical foundation for this study, was constructed from the philosophical discussions of several aesthetic theorists. From Peter Bürger (1984) voicing the call for change to Benedetto Croce (1995) challenging the traditional links between art, beauty, and aesthetics, a new school of thought began, to include more than fine art in aesthetic consideration, and to push the meaning of aesthetics. The enlightened thinking of Martin Seel (2005) on Martin Heidegger's work (1971) suggested presencing and perception as modes to aesthetic awareness in objects. In providing alternatives

to beauty for the sake of pleasure and to aesthetic value as identified by intuition, John Dewey (2005) and Croce (1995) fostered the aesthetic revolution out of infancy.

With the principles of a new aesthetic theory in hand, design can be evaluated in a new light, and in particular, sustainable design. As the need for influencing viewers to understand the importance of and need for sustainable products is made clear by a historical reflection, and by theorists and designers, this study merges the theory of cognitive aesthetic experience with sustainable qualities in design. The principles of cognitive aesthetics and sustainable design provide a method for infusing the design with elements which have the potential to push the viewer from relying on manifest references, and the traditional evaluation of art and design objects, to accepting latent references, thus heightening the aesthetic experience. By formulating the primary qualities of an aesthetic experience into a questionnaire form to be used to assess viewer reactions to design materials, this study works to realign viewers and sustainable design to a more appropriate and accurate value-fit through the introduction of knowledge and synthesis of intellectual processes.

BACKGROUND

2.1 What is Art? – The Point of Change

From the late eighteenth century onwards, when aesthetics was defined as a subfield of philosophy, art and aesthetics were mutually implicated, each providing a base for the critique of what constitutes the other (Gilgen, 2011). However, "it became apparent in the artistic practices and theoretical debates in the early twentieth-century modernist and avant-garde movement that they do not necessarily coincide" (Gilgen, 2011, p. 22). The traditional theory attached aesthetic value to art and only art, dismissing all other objects from the possibility of attaining aesthetic value. Under these guidelines, aesthetic phenomena denoted art, and art - aesthetic phenomena. The arrival of modernism and the avant-garde movement mark the turn in art history at which this traditional art theory, the theory engrained in bourgeois society, could no longer "present itself with the claim to universal validity" destroying the tradition's "possibility of positing aesthetic norms as valid ones" (Bürger, 1984, p. 87). The concern somewhat driving the avant-garde movement was that the traditional theory elevated art, and in turn aesthetics, to such an unreachable level under which all other objects and experiences were held as void of aesthetic value and quality. In the avant-garde, "values such as humanity, joy, truth, solidarity are extruded from life as it were, and preserved in art. In bourgeois society, art has a contradictory role: it projects the image of a better order and to that extent protests against the bad order that prevails" (p. 50). The traditional theory reserved aesthetic definition only for fine art, leading to the avant-garde proposal of "sublation of art – sublation in the Hegelian sense of the term: art was not to be simply destroyed, but transferred to the praxis of life where it would be preserved" (p. 49). In order to release aesthetic phenomena from its fine art singularity, first art required a

new definition before a new aesthetic could be determined. To do so and to preserve art under the new terms as prescribed by Bürger and later furthering the reaches of aesthetic phenomena, the purposes of art will first be analyzed as a foundation for the shift.

2.1.1 The Traditional Aesthetic: Art Through Intuition

In line with the emergence of avant-garde art theory, changing societal structures, progressive philosophical explorations, and the search for something beyond hedonistic and utilitarian attributes, the traditional purposes of art are called into question. Through the analysis and repudiation of traditional theory, the evolution of art and aesthetics can be explored. In trying to identify "What is Art?" Croce explores the various negation possibilities for considering art in the traditional sense, art as pleasure. To read pleasure characteristics, viewers rely on intuition. Under this traditional link, the assessment of art as pleasure also directly attributes pleasure as aesthetic value. Croce examines faults in such a hedonistic approach and proposes a reassessment of the purpose or intention of art, accepting art as non-utilitarian. "Another negation implicit in the definition of art as intuition is that if art is intuition, and if intuition signifies *theory* in the original sense of contemplation, then art cannot be a utilitarian act. For, inasmuch as a utilitarian act aims always at arriving at a pleasure and, hence, at removing a pain, art considered in terms of its own nature has nothing to do with the *useful*, or with *pleasure* and *pain*, as such" (Croce, 1995, p. 10). The definition of art as intuition easily translates into other limiting evaluations of art, where visual opinion, preconceived notions, memory, and taste drive a viewer's decision making and an object's ascent to aesthetic stature. Considering art "in terms of its own nature" was a concept traditional theory never accounted for. The uniqueness of a work was not seen as such, as artistic and aesthetic standards used comparison criteria to identify what was acceptable. Any new artistic style or concept was

misunderstood and labeled unappealing when it stood alone as an outlier from the norm. Once other artists emerged with similar versions of this new style, there was something against which works could be compared. Traditionally, art was evaluated strictly in terms of good vs. bad according to the institution of art and critiqued based on comparative analysis and intuition. Society was set, complacent to "Art". Further supporting his stance against art as pleasure, Croce (1995) micro-analyzes the tradition:

> At most, to defend on more valid grounds the definition of art as the pleasurable, one might argue that art is not the pleasurable in general but a *special* form of it. However, this restriction is no longer a defense but rather an actual abandonment of that thesis. For assuming that art is a special form of the pleasurable, it follows that its distinctive character would not be supplied by the pleasurable as such, but by whatever distinguishes the artistic from other forms of the pleasurable. And it is to that distinctive element apart from the pleasurable, or different from it, to which it would be fitting to address the inquiry. In any case, the doctrine which defines art as the pleasurable has a special name (hedonistic aesthetics), and is a long and complicated affair in the history of aesthetic theory (p. 11).

Croce continues to trace this aspect of aesthetic theory back to the Greco-Roman world, from which the basis of art as pleasure and the concentration of focusing on things beneficial to humans stems. Croce also discusses how there is a discrepancy in the use of art as pleasure when non-art objects may also be pleasurable. If an object elicits pleasure, what or who determines that it is not art? The fallacy of the presumption of art as pleasure is also demonstrated through the observation that "even in the relations which develop between ourselves and works of art, the difference between pleasure and art is self-evident. For the figure represented may be dear to us

and awaken the most delightful memories, but the picture may be ugly, nevertheless. On the other hand, the picture may be beautiful, but the figure represented abominable to our soul" (Croce, 1995, p. 11).

Art with an intrinsic quality of beauty is also directly linked to the pairing of art and aesthetics. Aesthetic worth is indicative of beauty and in turn to what is good and true, a notion that has also long plagued art. "From the moralistic doctrine is derived art's pre-established goal to serve as a guide to the good, inspire the abhorrence of evil, correct and improve manners and morals. And from the same source comes the demand that artist contribute to the public education of the lower classes… the spreading of the ideals of a modest and industrious life, and so on. All of which are things that art cannot do" (Croce, 1995, p. 13). Through the deeply rooted connection of art and aesthetics, the definition of good art frequently goes hand in hand with the habit of placing art on a pedestal as something unattainable, spiritual, and sublime. This expectation of art, to be a medium of good and beauty, disregards other possibilities of art and attributes an unrealistic power to art. Dewey (2005) identifies this fault of aesthetic theory, also exposing the tradition of placing fine art on a pedestal, foreign from everyday life and experiences: "The factors that have glorified fine art by setting it upon a far-off pedestal did not arise within the realm of art nor is their influence confined to the arts. For many persons an aura of mingled awe and unreality encompasses the "spiritual" and the "ideal" while "matter" has become by contrast a term of depreciation, something to be explained away or apologized for" (p. 4-5). This power that has long been ascribed to art, as Dewey discusses, has no realistic grounds, relying on other-worldly, non-human characteristics. And for those viewers who are unable to appreciate what a 'master' deems beautiful, it is accepted as a fault of status; they are not in tune with the spirituality and goodness of the piece- they are beneath it. In his exploration

of these faults, Dewey (2005) states that his purpose "is to indicate that *theories* which isolate art and its appreciation by placing them in a realm of their own, disconnected from other modes of experiencing, are not inherent in the subject-matter but arise because of specifiable extraneous conditions. Embedded as they are in institutions and in habits of life, these conditions operate effectively because they work so unconsciously" (p. 9). These theories have become the norm and what is accepted by all, unfaltering according to the laws of the traditional theory, where art and aesthetics coexist and stem from one another. Viewers have become compliant with the methods in which art is evaluated and fall without question into the status which society has placed on them in regards to how they are allowed to understand art. The traditional theory, however, overlooks the fact that the creation of art stems from a human act, made possible by common human movements. The artist may have a unique mind for creating the piece as a work of art, but in some way, art will always connect to human character in the viewer, as communicated by the human character of the artist. However, when evaluated through a new theory of art as cognitive construction, art must no longer be for pleasure or beauty, therefore expanding the field of what can be constituted as art and to what aesthetic value may be attributed. This redefinition of art propels a deconstruction of aesthetic norms, considering alternatives to visual sense and intuition (Croce, 1995; Dewey, 2005).

2.1.2 Art as Cognitive Construction

In the deconstruction of the traditional mode of art through intuition for the purposes of pleasure and beauty, the purely visual components of art are unraveled, pushing for a reliance on cognitive evaluation over utilitarian purposes in identifying art, and for that matter, aesthetic art. The modernist aesthetic asserts that art and aesthetics are no longer necessarily connected, and exist as logically separate concepts. While elements of the traditional theory may still be true,

where art and aesthetics still overlap in practice, pleasurable effects from art might be considered a byproduct of art, rather than art's sole intention. Croce (1995) first questions whether it is possible to create art through intellectual construction:

> "…the proof [of the unreality of the physical world] itself is being acknowledged by the physicists themselves – as evident in the traces of philosophy which they mix in with their science – when they conceive physical phenomena as manifestations of principles which go beyond experience, such as the atoms or the ether, or as the manifestation of an Unknowable… Thus, physical facts, by the internal logic and by common consent, make themselves known not as something truly real, but as a *construction of our intellect for purposes of science*. Consequently, the question as to whether art is a physical fact should rationally assume another meaning, namely, whether art may *be constructed physically*" (p. 10).

In parallel with art, the establishment of scientific fact begins with theory or philosophy. Through science, physicists are able to supply previously unknown ideas with evidence, making them acceptable to the scientific world and part of intellectual knowledge. Croce simply proposes that the same may be done with theories through art. Art as well may be manifestations of a concept which, through intellectual consideration, can have realistic grounding. The mounting evidence for the dismissal of the traditional thesis, art as pleasure, provides room for a new approach, lending to Croce's inquiry into art as cognitive construction for intellectual purposes. With the possibilities of art providing avenues for exploring theory and philosophy, it begins to become obvious that art serves a much more important and larger purpose than for pleasure. The theory of art for intellectual purposes and through intellectual interpretation also addresses the phenomenon of art as an act and a product of an artist, and art as something to be

consumed by an audience. With art as pleasure, the artist becomes servant to the audience and the desired style of the time. Art as cognitive construction enables the artist to develop and communicate a concept, which may or may not be ideal to or desired by society. As a depiction of theory exploration, there are no standards to which it must conform, creating an endless field of possibilities for artists willing to explore new territory. Also, depending on the viewer, the intellectual process and result of the piece differs, taking on various purposes for each viewer. Extracting art from the sole purpose of pleasure elevates art and acts to engage the artist and the viewers in an intellectual exchange.

2.2 Aesthetic Phenomena Removed From Art

Bound by tradition, art and aesthetics have long been tethered by primitive concepts of pleasure and beauty. While "Not all aesthetic phenomena are art, and not all art is aesthetic", "In practice… the two terms have been used more or less interchangeable for most of the history of the modern system of arts and the philosophical discipline of aesthetics… Mimetic (representational), expressive, and formalist theories share the assumption that art aims at beauty or, at least, at certain aesthetic qualities that it conveys in a more concentrated, intense, and complex way than other objects in the world" (Gilgen, 2011, p. 22). It is within the conceptual development of cognitive construction and the denunciation of art as pleasure and beauty that a shift occurs: Art is no longer the sole means to aesthetic end. The modernist aesthetic disconnected the concepts of art and aesthetics, defining them separately. The new theories and proposals exemplify the growing emphasis on the importance of a unity of various elements in determining aesthetic value or experience, bringing the concept of creating experience and aesthetic presence in the everyday into the foreground.

2.2.1 Perception: The Stepping Stone

Having established that there is an aesthetic achieved by methods other than intuition, the process of aesthetic value development and elevating non-art objects to such level has also been theorized. These theories attempt to formulate aesthetic determinants, such as conceptualizing aesthetic perception, as key to aesthetic evaluation. Martin Seel delves into an aesthetic theory that follows aesthetic appearing and presencing. The theory of "aesthetic appearing developed by Kant generates, besides a minimal concept of aesthetic perception, a minimal concept of the aesthetic object. These are minimal determinations because they highlight something that is characteristic for aesthetic objects and modes of comprehension – however radically different they may well be in other respects. The aesthetic object is an object in the process of its appearing; aesthetic perception is attentiveness to this appearing" (Seel, 2005, p. 4). The underlying process of appearing, which as Seel attributes to Kant, is understood and acknowledged through aesthetic perception.

Aesthetic perception is a step beyond the traditional assessment of art and aesthetics through intuition. However, at this stage of aesthetic redefinition, perception, as discussed by Kant and Heidegger, still references art as the aesthetic object. Heidegger maintains that "the realm of art… must be conceived in terms of its works, but nonetheless under strict inclusion of the "producing", "lingering", and "preserving" attentiveness without which there would be no artistic products" (Seel, 2005, p. 12). Heidegger (1971) also recognizes the loss of aesthetic objects through the nature of art evolution, where extraordinary objects are demoted to a state of ordinary and unworthy of aesthetic consideration: "the first interpretation of the thingness of the thing, the thing as bearer of its characteristic traits, despite its currency, is not as natural as it appears to be. What seems natural to us is probably just something familiar in a long tradition

that has forgotten the unfamiliar source from which it arose. And yet this unfamiliar source once struck man as strange and caused him to think and to wonder" (p. 24). The pause for wonder is the essence of perception, pushing interaction with an art object from mere intuitive visual assessment to a moment of preserving aesthetic value in the piece. "To apprehend something in the process of its appearing for the sake of its appearing is a focal point of all aesthetic perception. Of course, this perception frequently goes way beyond a mere execution-oriented sensing" (Seel, 2005, p. 15). In exploring Heidegger, Seel (2005) also ruminates over the lost or missed opportunities for object appearance:

> Every present consists of numerous seized and missed possibilities of commission and omission that are to be found in it. Most of the possibilities seized in it are seized unnoticeable, and most of the opportunities missed in it are lost unnoticeable. Heidegger expressed this in *Being and Time* using the terms "thrownness" [*Geworfenheit*], which is the counterpart of all "projecting" [*entwerfend*] conduct. According to this, all searching for orientation is conducted within the horizons of indeterminate relations, which actually remain for the most part indeterminable. The present within which we move as acting beings is always equipped with an abundance of unexhausted epistemic possibilities and unrealized action opportunities. In this dovetailing of reality and possibility – in the fact that every present of action consists of existent and nonexistent, seized and missed possibilities of knowledge and action – there is a common root of the two contrary driving forces of aesthetic perception: to lose oneself in the real or to go beyond everything that is (so far) real … It is thus an elementary characteristic of human life reality that all those situated in it with unclouded consciousness always see themselves simultaneously in past and future referred to probable, improbable, and merely imagined

> states. For this reason, aesthetic sense can also be understood as a sense of the potentiality of those realities that we experience or imagine as presences of our lives" (p. 98-99).

This establishes a standard that all objects hold potential for aesthetic determinism, while also stating that for that potential to be fulfilled, consciousness and a calling out of that object is required. In a similar discussion of the interaction of presencing and the aesthetics of appearing, Gumbrecht (2004) analyzes Seel:

> "Even closer to my own concerns… is… Martin Seel's proposal to ground a new reflection on aesthetics in the concept of "appearance." Under "appearance" Seel subsumes the conditions through which the world is given to us and presents itself to the human senses (another word that he uses in the same context is *Wahrnehmung*: "perception"). Obviously, an aesthetics of appearance tries to bring back to our consciousness and to our bodies the thingness of the world. Appearance is also in tension, inevitably, with the dominant interpretative approach that permeates out everyday relationship to the world up to the point of making us forget that it necessarily implies a layer difference from meaning. Not randomly, therefore, Seel repeatedly associates appearance with presence – and whatever "appears" is "present" because it makes itself available to the human senses" (p. 63).

The element of consciousness allows objects to become present and to appear for consideration as aesthetic. Intuition, on the other hand, is an assessment void of purposeful consciousness, a constant stream and intake of the surrounding world, each object indistinguishable from the next. Intuition does not require depth of experience in order to assign pleasure and beauty. Gumbrecht also explores the properties of presence culture vs. meaning culture in relation to object

appearance. In a presence culture, humans are seen as part of the world system rather than merely in a constant relationship with the external surrounding world. Meaning culture, on the other hand, focuses on the mind, where object meaning is derived by subjective human knowledge, not by the full existence of the object in the world.

> "In a presence culture, the things of the world, on top of their material being, have an inherent meaning (not just a meaning conveyed to them through interpretation), and humans consider their bodies to be an integral part of their existence … knowledge, in a meaning culture, can only be legitimate knowledge if it has been produced by a subject in an act of world-interpretation (and under the specific conditions of what I have… called "the hermeneutic field," that is, by penetrating the "purely material" surface of the world in order to find spiritual truth beneath or behind it). For a presence culture, legitimate knowledge is typically revealed knowledge. It is knowledge reveled by (the) god(s) or by difference varieties of what one might describe as "events of self-unconcealment of the world"" (Gumbrecht, 2004, p. 80-81).

Under this interpretation of meaning vs. presencing, meaning attributed to an object is an external development by the viewer and outside elements. Presencing, however, includes the object and its Being in the aesthetic assessment, allowing the truth of the object, as part of the world and inherently linked to its surroundings, to appear. The Heideggerian concept Being represents the essence of an object and "…should have encouraged us to imagine the "knowledge" revealed or unconcealed can be substance that appears, that presents itself to us (even with its inherent meaning), without requiring interpretation as its transformation into meaning" (Gumbrecht, 2004, p. 81).

In an extension of the aesthetics of appearing as identified by Kant and Heidegger, the aesthetic is described to occur among a wide array of objects: "One type of aesthetic object enjoys its distinctiveness only in relation to other types, against which it stands out, to which it is related, with which it is in a process of exchange… It is only together with a sense of the general that the sense of the particular is there; only together with a concept of this general is it possible to have an understanding of the multiplicity of aesthetic objects and opportunities" (Seel, 2005, p. 19). Seel ascertains that an aesthetic object requires a sense of 'specialness' from other objects, providing a point of comparison. In this, Seel takes the aesthetics of appearing theory and applies it to more than art: "Its lofty realizations – attending a concert, a trip into the countryside, suddenly stopping to contemplate something we just don't want to disengage our senses from – unfold into a stream of mundane states. Aesthetic perception is open to us at all times, as long as external or internal pressure does not deny us the latitude necessary for engaging in it. It finds opportunity everywhere" (p. 20).

The distinguishing point between aesthetic appearance through perception and the development of full aesthetic experience, as later outlined by Dewey, is the inclusion or presence of knowledge. Whereas experience requires knowledge, "In a situation in which aesthetic perception is awakened we relinquish a solely function orientation. We are no longer preoccupied (or no longer *solely* preoccupied) with what we can achieve in this situation through knowledge and action" (Seel, 2005, p. 20). Aesthetics of appearing relies on a level of attentiveness to the object in question to produce a pause for perception and ultimately consciousness to occur. While these principles are aligned to develop object aesthetic value, the process has still not come full circle with definitive lines towards aesthetic phenomena. "Wherever the ability to perceive or imagine something in its appearing is realized, aesthetic

consciousness emerges. For this to come about, an encounter with attending objects of perception is not necessary; what is necessary is an *imaginative projection* of their presence. In this sense, the theory of the situation of aesthetic perception drafted here is not indeed a comprehensive analysis of the processes of aesthetic consciousness, but it is nonetheless an essential one…" (p.104). There is more to aesthetic consciousness than object perception, and just as the move was made from intuition to perception, an extension from perception also needs to be established to provide the stepping stone from intuitive aesthetic evaluation to aesthetics as *an* experience. It is part of the narrative journey required for consummation into experience.

2.2.2 A Full Redefinition of Aesthetics: *An* Experience

By the repurposing of art as more than hedonistic expression, art is no longer held to the criteria of pleasure and beauty. In this step, art is redefined as something outside of those utilitarian principles, bringing about the re-conceptualization that art does not have to be beautiful, good, or moral to be considered art. Instead, witnessing aesthetic phenomena can mean something very different. With the separation of art from aesthetic and aesthetic from art, the question emerges of what, then, constitutes aesthetic, if not art. The complexity of this, however, is that the question can be approach from either side: redefining art, or redefining aesthetics. With a reassessment of both concepts, it may even be possible that the result in fact realigns the two in the context of fulfilled judgment. To begin the evaluation of art from a new non-utilitarian perspective, the choice of viewpoint must be explored. Is it the eye of a master artist, a trained and educated viewer or the common human, that has the ability to make such a determination? Dewey suggests that, based on the traditional view of art, it can be a struggle for the non-elite to perceive art in such a way which fosters cognitive evaluation. The traditional theory previously explored portrays art as a field understood only by select elites and artistic masters, leaving those

below such status to fall into submission, blindly accepting the appraisals of those elites. "A judgment as an act of controlled inquiry demands a rich background and a disciplined insight. It is much easier to "tell" people what they should believe than to discriminate and unify. And an audience that is itself habituated to being told, rather than schooled in thoughtful inquiry, likes to be told" (Dewey, 2005, p. 312). The openness to art as intellectual construction may be limited, the mind having lost the ability and desire to be trained to perceive intellectual communication in art. On the other hand, as humans, even the untrained and common mind has the basic background essential to perceiving intellectual art: "The masters themselves usually serve an apprenticeship, but as they mature they absorb what they have learned into their own individual experience, vision, and style. They are masters precisely because they do not follow either models or rules but subdue both of these things to serve enlargement of personal experience" (p. 313). While the cognitive appraisal of art as defined by Croce and Dewey relies on the ability to synthesize and turn intuition into perception, without individual experience the intuition on which to build judgment would not be possible. Beardsley also discusses this concept of life experience: "We do not come to the object cold, and, as will be even more evident later on, our capacity to respond richly and fully to aesthetic objects depends upon a large apperceptive mass. This may include some previous acquaintance with the general style of the work, or of other works to which it alludes, or of works with which it sharply contrasts" (Beardsley, 1981, p. 53). It appears possible that any 'untrained' viewer can develop the abilities of master of the cognitive appraisal of art. This development is supported by "evidence – some of it, indeed, included in the Argument from Variability – to show that individual tastes *can* be changed, that it is possible to increase subtlety of discrimination and range of enjoyment and complexity of understanding by appropriate training" (p. 488). Having established that the viewer can adapt to

perceive cognitive communication and that the consumption of such art can result in greater value than art as pleasure, the need for art as cognitive construction is reaffirmed. Given Beardsley's concept of increased "subtlety of discrimination", direct and outright displays of art in the traditional sense are no longer necessary nor are they prerequisites for being considered art.

As a means of providing structure for such "subtlety of discrimination", Dewey develops the concept of *an* experience to distinguish between the overall continuous experiences of life from those which are defined and stand out from the mundane and ordinary. The criteria provided to define which experiences qualify as *an* experience stress the concluding, intellectual, emotional, harmonious, and aesthetic nature of products or events. The primary examples of where such *an* experience may be found are in art, the pinnacle of aesthetic display, leaving all other areas to fail in achieving this, resulting in the non-aesthetic. Dewey (2005) states that "… the non-esthetic lies within two limits… There exists so much of one and the other of these two kinds of experience that unconsciously they have come to be taken as norms of all experience. Then, when the esthetic appears, it so sharply contrasts with the picture that has been formed of experience, that it is impossible to combine its special qualities with the features of the picture and the esthetic is given an outside place and status" (p. 41). There needs to be, however, elements beyond art, which possess the criteria for *an* experience, bringing aesthetic value to the everyday and the mundane. By analyzing the conditions through which *an* experience may be had, methods or elements which would allow for traditionally non-art objects to be elevated to also achieve such aesthetic unity may be implied.

The first quality established to aid in providing such *an* experience and the basic principle distinguishing one from other experiences, is that the subject must progress to a conclusion or

ultimate end. “A piece of work is finished in a way that is satisfactory; a problem receives its solution; a game is played through; a situation, whether that of eating a meal, playing a game of chess, carrying on a conversation, writing a book, or taking part in a political campaign, is so rounded out that its close is a consummation and not a cessation. Such an experience is a whole and carries with it its own individualizing quality and self-sufficiency. It is *an* experience” (Dewey, 2005, p. 37). Within the field of art, more specifically painting, the artist “is controlled in the process of his work by his grasp of the connection between what he has already done and what he is to do next”, and “must consciously undergo the effect of his every brush stroke or he will not be aware of what he is doing and where his work is going” (p. 47). The awareness of such process creates the consummation, not as a mere abrupt conclusion, but that of a culmination towards which the process or action has strived. In the case of fine art, the artist holds the awareness, and attempts to share the process with future viewers by making the process evident in the work, transforming his experience into *an* experience for them. Dewey gives a simple illustration to generalize the idea of consummation, projecting the act of having *an* experience onto the subject as an internal property: “…if we imagine a stone, which is rolling down hill, to have an experience… The stone starts from somewhere, and moves, as consistently as conditions permit, towards a place and state where it will be at rest – toward an end… it is interested in the things it meets on its way… and that the final coming to rest is related to all that went before as the culmination of a continuous movement. Then the stone would have an experience, and one with esthetic quality” (p. 41). Representing an object itself having *an* experience, removed from the actions and thought processes of an artist, suggests that other objects may also possess such a ‘story’ which lends to, and creates aesthetic value in it This

metaphor may also be approached with the stone representing the viewer, coming to interact with the object, bringing along remnants of all life prior to that point, influencing the experience.

In regard to the example of the artist and his painting, it is the control of the creation process which leads to the success of the product providing viewers with *an* experience. However, according to Dewey, such control can only be accomplished through the intellectual awareness and preparation of the artist. As noted previously, the connection between the act and direction of creating a piece, and focus on the relationship between the steps to form the end result is a process of thought. "To apprehend such relations is to think, and is one of the most exacting modes of thought" (Dewey, 2005, p. 47). In such occurrences where there is a creator and the created, the mode of intellect is apparent. In the example of the stone rolling down hill, it is not. In its case, the stone itself experiences, affected by all the elements along its descent. Another avenue of the intellectual process that guides a subject to aesthetic and experiential success could be created by tracing the 'path' of such an object, rather than a retelling of the *artist's* journey. Like the brush strokes and technique of the painting, debris and markings from the stone's roll may also tell of the process and layers of its culmination. In such an instance, the stone is not akin to viewers such as us, but to the artist and the medium in one. Following the illustration of the stone rolling down hill, Dewey relates experiences or a mundane or common nature more to the act of rolling or drifting, rather than to a journey and the resulting end. "For in much of our experience we are not concerned with the connection of one incident with what went before and what comes after. There is no interest that controls attentive rejection or selection of what shall be organized into the developing experience" (p. 41). The process of intellect is lost in such a subject. To bring attention to it, means of developing *an* experience must be used. "There is… an element of undergoing, of suffering in its large sense, in every

experience. Otherwise there would be no taking in of what preceded. For "taking in" in any vital experience is something more than placing something on the top of consciousness over what was previously known. It involves reconstruction…" (p. 42). Imposing intellect or reconstructing the process through thought may result in creating *an* experience upon which, previously, an adrift viewer would never have focused.

To further the success of a subject in creating *an* experience for the viewer, emotional connection and affinity is also required. Again, in reference to art, "the experience itself has a satisfying emotional quality because it possesses internal integration and fulfillment reached through ordered and organized movement. This artistic structure may be immediately felt. In so far, it is esthetic" (Dewey, 2005, p. 39). Such structure can be developed within the piece by the artist's intellectual planning, made apparent by the techniques and subject within it. However, in discussing the emotional element of *an* experience, Dewey extends the focus beyond painting, providing the example of the emotional development of a drama. "In fact emotions are qualities, when they are significant, of a complex experience that moves and changes... All emotions are qualifications of a drama and they change as the drama develops… The intimate nature of emotion is manifested in the experience of one watching a play on the stage or reading a novel. It attends the development of a plot" (p. 43). Dewey continues to express that, just as the culmination of the subject's journey is what holds value, the overall experience holds a cumulative emotional quality rather than emotional parts gained along its development. In the same manner that the example of a drama depicts the development of an emotional characteristic as part of *an* experience, uncovering or reconstructing the journey of a subject creates a similar story. By bringing the subject into its context and retelling its journey, an emotional connection

is established, as "parts of an inclusive and enduring situation that involve concern for objects and their issues" are developed (p. 44).

The qualities established by the element of consummation, intellectual character, and emotion are innately joined within *an* experience, stemming from and establishing each other. For instance, emotion "is the moving and cementing force. It selects what is congruous and dyes what is selected with its color, thereby giving qualitative unity to materials externally disparate and dissimilar. It thus provides unity in and through the varied parts of an experience" (Dewey, 2005, p. 44). The unity of the elements ensures the overall result of *an* experience, rather than allowing focus on one particular part over the others of a subject. Just as Dewey asserted that emotion is an overarching element, "An experience has a unity… The existence of this unity is constituted by a single *quality* that pervades the entire experience in spite of the variation of its constituent parts" (p. 38). This single quality threads the parts of the experience, or the various contact points and debris sources from the stone's roll down hill, into an overarching experience, bringing focus to it. If such unity can be established in a painting or drama, certainly, with implied effort, an everyday occurrence may be elevated from status of a mundane experience to *an* experience.

Lastly, just as Dewey expresses that an object which does not possess the elements discussed above is anesthetic; those that do are innately aesthetic. For instance, the concept of having a conclusion is described as a natural link to having aesthetic character: "We say of an experience of thinking that we reach or draw a conclusion… In fact, in an experience of thinking, premises emerge only as a conclusion becomes manifest… If a conclusion is reached, it is that of a movement of anticipation and culmination, one that finally comes to completion. A "conclusion" is no separate and independent thing; it is the consummation of a movement.

Hence, *an* experience of thinking has its own esthetic quality" (Dewey, 2005, p. 39). As with the element of consummation, thought and emotion prescribe aesthetic character to their subject. In the event of their unity, these elements provide their subject with intrinsic aesthetic value. It may be concluded that based on the concepts that *an* experience is derived from the harmonious existence of all such components, and that together aesthetic quality is innate, that all occasions of *an* experience are also aesthetic experiences. From an analytic stance, this will always be true, regardless of the situation. Dewey (2005) even expresses that this is so despite moral standing: "…interest is not exclusively, perhaps not mainly, held by the result taken by itself (as it is in the case of mere efficiency), but by it as the outcome of a process. There is interest in completing an experience. The experience may be one that is harmful to the world and its consummation undesirable. But it has esthetic quality" (p. 40). While the aim of this analysis of the qualities of *an* experience is to explore the possibility of non-art subjects being also capable of developing *an* experience, the innate linked existence of *an* experience with aesthetic value forms further inquiry in regards to moral influences.

By following Dewey's criteria of *an* experience, it is obvious that concluding, intellectual, and emotional qualities are the distinguishing factors. From this exploration, there is suggestive evidence that by reconstructing the context of a non-art object, *an* experience is possible and may be extended to experiences previously marked as mundane. Such a method may be useful in drawing attention to overlooked objects of importance. It may also, by innate connection, ascribe aesthetic value to such non-art objects. Tracing an object's history, as seen through its visual characteristics, may provide the same story that an artist imprints in his work through intellectual planning and emotional connection. The challenge to viewers would be to see the object not as part of an everyday stream of information, but as a singled out object with

the potential for creating *an* experience. While such an object is now at rest, it came into its current stance as the result of a contextual journey. The next question, as briefly discussed, is the moral experiences and influences from that journey, and the reconstructed information which can be attributed to it.

2.2.3 The Role of Knowledge in Aesthetic Development

Under the new aesthetic which calls for cognitive construction and a complete experience through concluding and intellectual means, additional information may be required for the viewer to assess objects for aesthetic value. This information, or knowledge, has the power to create for the viewer a story, such as with Dewey's stone rolling down the hill. The addition of such knowledge elements creates the opportunity for factors external to the object to become a part of assessing aesthetic value. Prior to these elements, a viewer relies on internal subjective guidance and manifest references based on the traditional properties of aesthetics: pleasure and beauty. In his discussion of the Intellectualistic Theory, Beardsley (1981) states that: "it is not the elements, internal relations, and other regional qualities of the object alone that are the conditions of its being beautiful, but its embodiment, or showing forth, of some conceptual or cognitive content" (p. 508). Cognitive content beyond the retinal qualities of the object and preconceptions of the individual viewer give way to cognitive consideration. It is much more than standard intuition, and surpasses perception, as the contemplation is not just granted through emphasis by the object and viewer.

In exploration of this ultimate assessment of an object, Dewey (2005) states that in "…an experience, actuality and possibility or ideality, the new and the old, objective material and personal response, the individual and the universal, surface and depth, sense and meaning, are integrated in an experience in which they are all transfigured from the significance that belongs

to them when isolated in reflection… Of art as experience it is also true that nature has neither subjective nor objective being; is neither individual nor universal, sensuous nor rational" (p. 309). Dewey breaks down various dualisms that still cling to the evaluation of art and in turn other objects with aesthetic potential. The approach of intuition and perception synthesis resulting in a more accepting judgment of art may also still come with certain poles for the viewer and the viewer's assessment. Similarly to the discussion of logical vs. historical context by Croce, particularly with "neither individual nor universal, sensuous nor rational," it is evident here that judgment cannot rely on the experience of a single being on which to form the basis for the piece, yet the individualities brought to the judgment by each viewer varies to create unique perspectives of the piece. It is also not possible to have a complete judgment without intuition (sensuousness) or without cognitive assessment (rational). As it has been addressed several times, complete judgment truly is a synthesis of opposing forces, unique to each artist, viewer, and object. The synthesis is also a process forming over time in terms of the viewer's consumption of the piece. "In every integral experience there is form because there is dynamic organization. I call the organization dynamic because it takes time to complete it, because it is a growth. There is inception, development, fulfillment. Material is ingested and digested through interaction with that vital organization of the results of prior experience that constitutes the mind… Incubation goes on until what is conceived is brought forth and is rendered perceptible as part of the common world" (Dewey, 2005, p. 57). Fulfillment is the achievement of constructing a judgment cognitively. The process, defined so simply and accurately by Dewey as inception – development – fulfillment, aligns with all the elements discussed in reference to the various stages of interaction with art, sense exploration, communication, and context. Inception can be defined as the initial intuitive assessment, followed by development, or the rumination

into perception. The process of development towards *an* experience is also a journey towards truth, allowing for the revealing of an object's full nature, or in Heideggerian terminology, its Being. "Truth is the unconcealedness of that which is as something that is. Truth is the truth of Being. Beauty does not occur alongside and apart from this truth. When truth sets itself into the work, it appears. Appearance – as this being of truth in the work and as work – is beauty. The beautiful belongs to the advent of truth, truth's taking of its place. It does not exist merely relative to pleasure and purely as its object" (Heidegger, 1951, p. 79).

Culminating in fulfillment, the cognitive construction builds to the point of truth or insight into the concept of the piece. The temporal cognitive processes can be perceived through an intellectual exchange, overtly or otherwise, between the object and the viewer, hence, knowledge.

2.2.4 Aesthetics in the Everyday

Now that it has been established that all humans have the capability, based on experience, to participate in the progression from object to aesthetic object, and thus are intellectual consumers of art, what this cognitive journey can be applied to comes into question. In the progression from intuition to perception, the cognitive vehicle is motivated by and rooted in an innate human desire for truth: "Everybody through experience is acquainted with the burning desire that takes hold of us to unveil the face of reality, hidden by our illusions… its discovery is never divorced from a profound sense of satisfaction: the satisfaction in the possession of the truth" (Croce, 1995, p. 55). The searching out and continuation on to the fulfillment of the cognitive construction, the culmination of having an experience, is maintained by this need for truth. Dewey (2005) makes a similar conclusion regarding the unavoidable human necessity for truth: "Nevertheless, the experiences in question are dominantly intellectual or practical, rather

than distinctively esthetic, because of the interest and purpose that initiate and control them. In an intellectual experience, the conclusion has value on its own account. It can be extracted as a formula or as a "truth," and can be used in its independent entirety as factor and guide in other inquiries" (p. 57). However, not all objects have the potential to ignite the quest for truth, or provide the possibility of, in Dewey terms, conclusion. The question then becomes: if the potential for perception is made possible by this element of human truth seeking, what is the source within a piece for sparking that transition from intuition to perception, making certain objects capable of promoting this progression? Dewey (2005) identifies that "… the non-esthetic lies within two limits… There exists so much of one and the other of these two kinds of experience that unconsciously they have come to be taken as norms of all experience. Then, when the esthetic appears, it so sharply contrasts with the picture that has been formed of experience, that it is impossible to combine its special qualities with the features of the picture and the esthetic is given an outside place and status" (p. 41). The sharp contrast to which Dewey refers is a shock point, where some objects have more depth in cognitive character than others around them, inducing the intuition to perception progression. It is still unclear of what specific elements an artist might include in his work to ensure that the work constitutes art over those that do not. It is not as simple as specific content, or colors, or style.

As the field of opportunities for art, and thus aesthetic phenomena under their new definitions, to emerge has grown, Beardsley (1981) explores the construction of form through thought: "…thinking of something is one mode of awareness of it, and even if that which is thought of is non-existent, it is something that can be dwelt upon, contemplated, as if it were or could be before you – though it is not at all necessary that you should have mental images of it – and hence it impinges upon your phenomenal field as an object" (p. 40). For providing a new

definition of art, a product of pure thought seems to fall short, excluding instead the intuition prerequisite in the development of a cognitive piece. The questions are there, the struggle to define art overpowering. Dewey forms a theory, an attempt to rebuild the concept of art after its severance from aesthetics, by developing the definition of *an* experience. "Things are experienced but not in such a way that they are composed into *an* experience. There is distraction and dispersion; what we observe and what we think, what we desire and what we get, are at odds with each other… In contrast with such experience, we have *an* experience when the material experienced runs its course to fulfillment" (Dewey, 2005, p. 36). The fulfillment of which Dewey references is the same concept as the synthesis or progression from intuition to aesthetic judgment. An object up for consideration as a possible cognitive art piece must be able to communicate with the viewer for the duration of the process, including most importantly a concluding result. "A piece of work is finished in a way that is satisfactory; a problem receives its solution; a game is played through; a situation, whether that of eating a meal, playing a game of chess, carrying on a conversation, writing a book, or taking part in a political campaign, is so rounded out that its close is a consummation and not a cessation. Such an experience is a whole and carries with it its own individualizing quality and self-sufficiency. It is *an* experience" (p. 37). The process or synthesis does not simply end, but results in the fulfillment or culmination of the cognitive journey. In order to have reached this point, the piece must have held the attention of the viewer along the way, the challenge to the artist is to provide the vehicle in which to do so. The piece which is able to hold attention for the duration of the synthesis is art and consequently, aesthetic. Dewey (2005) provides insight into how this may be accomplished and what sets art apart from other pieces attempting to become art:

> "In a work of art, different acts, episodes, occurrences melt and fuse into unity, and yet do not disappear and lose their own character as they do so – just as in a genial conversation there is a continuous interchange and blending, and yet each speaker not only retains his own character but manifests it more clearly than is his wont… The existence of this unity is constituted by a single quality that pervades the entire experience in spite of the variation of its constituent parts. This unity is neither emotional, practical, nor intellectual, for these terms name distinctions that reflection can make within it" (p. 38).

The term unity constitutes a unique concept where independent characteristics of the piece cannot define the work as a whole. By describing the experience as only emotional, practical, or intellectual, attention is drawn to a specific element of the piece, overlooking the other qualities, which when considered together could constitute unity. Together, as a work of unity, any distinction of various parts blur to become one, culminating into an overall distinction or a setting apart from other works which rely on an independent quality to achieve distinction. Like the progression from intuition to perception, the fulfillment of art is a dynamic process.

> "… in much of our experience we are not concerned with the connection of one incident with what went before and what comes after. There is no interest that controls attentive rejection or selection of what shall be organized into the developing experience. Things happen, but they are neither definitely included not decisively excluded; we drift. We yield according to external pressure, or evade and compromise. There are beginnings and cessations, but no genuine initiations and concluding. One thing replaces another, but does not absorb it and carry it on. There is experience, but so slack and discursive that it is not *an* experience" (Dewey, 2005, p. 41).

With this exploration of experience vs. *an* experience, it becomes apparent that this level of art, in order to be experienced by the viewer, must be created by the artist with such intention in mind. This direct link between artist and viewer is the act of communication of an idea or concept which requires cognitive participation by both parties to be constituted art. In this way, art fully comes into its new role as cognitive construction for intellectual consumption. The artist, by creating a vehicle that provokes the process, creates art which achieves fulfillment through the synthesis of intuition into perception by the viewer. When the viewer is able to read the communication that the artist imbedded in the work and follow the communication from independent experience through to the cognitive fulfillment of having an experience, the piece can be deemed art under its new definition. Whether or not the specific outcome intended by the artist is present in the viewers resulting experience, the instigating point drafted by the artist still promulgated the process. The common unconsciousness of reaction in reference to the traditional theories of art do not possess such qualities, providing the sharp contrast necessary for initiating the impact that this new art can have. The ability to judge and perceive the art as *an* experience far surpasses art as pleasure and art as beauty.

In Dewey's discussion of the sharp contrast between experiences and having *an* experience, he references cognitive experience as aesthetic and all other experience as non-aesthetic. Within these parameters, it is not even necessary to separate art from aesthetic, as once art is redefined, existing as more than traditional fine art and visible by all, the uniqueness of such art may be considered aesthetic regardless of its beauty, spiritual or sublime qualities traditionally required for aesthetics. Supporting this claim is again Beardsley's Intellectualistic Theory, which relies on a display of cognitive content rather than a single internal character for aesthetic phenomena. Also, under the traditional definition of aesthetics, implying art as

beautiful and as something other-worldly, it may be easy to categorize art into good vs. bad or aesthetic vs. non-aesthetic to explain and determine which objects have the potential, but such dualistic poles are difficult to define and overlook any middle ground between the opposing sides. In terms of attributing aesthetic value to objects, beauty and spirituality both relate to visual and emotional intuition allotted by the piece. Many objects possess these things, but the true aesthetic experience can only be found with the fulfillment of the progression from that intuition to an experience though cognitive construction. Dewey (2005) identifies the same questions regarding the vagueness of aesthetic characterization and aesthetic theory:

> "Theory is concerned with discovering the nature of the production of works of art and of their enjoyment in perception. How is it that the everyday making of things grows into that form of making which is genuinely artistic? How is it that our everyday enjoyment of scenes and situations develops into the peculiar satisfaction that attends the experience which is emphatically esthetic? These are the questions theory must answer. The answers cannot be found, unless we are willing to find the germs and roots in matters of experience that we do not currently regard as esthetic… *If* artistic and esthetic quality is implicit in every normal experience, how shall we explain how and why it so generally fails to become explicit? Why is it that to multitudes art seems to be an importation into experience from a foreign country and the esthetic to be a synonym for something artificial?" (p. 11).

The application of this new theory of art and aesthetics to everyday objects may seem problematic, implying that all objects have potential to be art. However, the standards set forth by cognitive construction specifies that while all objects may have such potential, as objects encountered and experienced in everyday life, not all ascend to art status. There are still limits to

what can be considered art, but they no longer include discriminatory items such as spiritual worth, goodness and beauty. Instead, the object is transformed into art through communication of artist and viewer through cognitive evaluation and fulfillment. “Since the matter of esthetic criticism is the perception of esthetic objects, natural and artistic criticism is always determined by the quality of first-hand perception; obtuseness in perception can never be made good by any amount of learning, however extensive, nor any command of abstract theory, however correct. Nor is it possible to exclude judgment from entering into esthetic perception, or at least from supervening upon a first total unanalyzed qualitative impression” (Dewey, 2005, p. 310). Once an object latches onto a viewer’s perceptive awareness, the process of cognitive construction has begun, and such an object by virtue of this process develops aesthetic value. Just as fulfilled knowledge and understanding of the object brings the mind and human spirit to a level of achievement and truth, the presence of qualities in an object responsible for such a process is an achievement of ultimate aesthetic worth.

The implementation of the new theory for the evaluation of art accepts a new definition of art and designation of aesthetics. It is imperative, according to the theory, that in order for works to be considered art, they must possess elements which provoke cognitive exploration. The traditional hedonistic theory of art and aesthetics truncates art’s potential, limiting the applications of art in order to fit the mold of pleasure and sublime standards. By expanding the field of art to include art as cognitive construction, the properties of aesthetics also extend. The uniqueness of the theory, however, is not that the result of an art critique under the new method accepts more physical characteristics as aesthetically pleasing, but that the intellectual journey to cognitively evaluate the piece has aesthetic value in it of itself. In the attempt to define art as

something more than aesthetic, the core of aesthetics is altered, realigning art and aesthetics under the new cognitive theory.

2.3 Sustainable Design and the New Aesthetic

2.3.1 Aesthetics in Design

Having established a new definition of aesthetics and opening avenues to subjecting non-art objects to these aesthetic principles, the possibilities of aesthetic experience can be found in other areas, and in this exploration in design and architecture. This conclusion has been made by theorists and designers who have developed their own methods of identifying the aesthetic in design and the need for continued discussion of aesthetic phenomena in design. Design provides a unique opportunity for aesthetic experience, often combining artistic elements with function and materiality for a specific purpose. As such, "… design is not the expression of a lone artist, but the result of commercial and societal processes and, at best, of an ambition to grasp the potential power of giving shape to our environments in innovative and progressive ways that are appropriate to human needs" (Folkmann, 2010, p. 41). Design objects provide the ultimate venue for examples of aesthetic phenomena in the everyday.

Roger Scruton, an aesthetic philosopher, draws from traditional and contemporary aesthetic theory to assess architectural examples and determine the possibilities of aesthetic experience development in design. Following a similar lineage as discussed in previous sections, the traditional assumption attributing aesthetics to intuitive pleasure and beauty is belittled to the status of jumping off point for perception, and later full aesthetic experience. Scruton (1979) begins by discriminating between purely pleasurable examples of architecture and those that allow for a higher level of interest generating elements of aesthetic value:

> "There are buildings from which we seem to derive a pleasure akin to the sensuous, buildings like Frank Lloyd Wright's celebrated wax factory, in which the effect is concentrated on an alternately crisp and silky exterior, the value of which seems almost tactile. But it is doubtful that such a building can represent the norm of architectural interest, or that it is in any case aptly described in sensuous terms. There is an important distinction between sensuous pleasures and those which have traditionally been described as 'aesthetic'. Aesthetic pleasure is not immediate in the manner of the pleasures of the senses, but is dependent upon, and affected by, processes of thought" (p. 71-72).

However, in the process beyond intuition to perception brought on my intellectual consideration, Scruton (1979) maintains pleasure, though carrying a small role, as a valuable quality in aesthetic assessment: "In the case of architectural enjoyment some act of attention, some intellectual apprehension of the object, is a necessary part of the pleasure: the relation with thought is an internal one, and any change in the thought will automatically lead to a redescription of the pleasure" (p. 73). It is important to note here that this pleasure is not of the hedonistic kind responsible for aesthetics in the traditional sense, but relates to enjoyment and the inner need to further one's understanding of the object. It is instead a byproduct of intellectual assessment, rather than the initiating principle, and so evolves based on cognitive elements and viewer interaction.

With intellectual apprehension, while the intellectual component originates in the object's being it is synthesized by the viewer. Scruton describes such added attention as active participation, where each viewer is drawn to various elements of the object, assessing it at a different rate and order. Even if a viewer is instructed on how to visually move along the object, the cognitive process relating each view to other views is viewer specific.

> "It makes sense to ask someone to see the columns now one way, now another, and this request can be obeyed directly: there is nothing else that has to be done first in order to comply with it. In this respect the experience shares one of the fundamental properties of imaginative thought (as when I ask someone to 'think of it in this way…'): the property of voluntariness. And it possesses this property despite the fact that there is no easily identifiable concept… which is here being consciously misapplied. The experience is voluntary purely because a particular act of attention is involved in its existence. It is, therefore, not an accident that the experience of the columns should be affected by the way we think of them. It will change, for example, under the influence of comparisons we might make with other structures…" (Scruton, 1979, p. 90).

The thinking aspect of visual intake and viewer individuality is highlighted as active participation, "required for its [architectural experience] completion. Each determinacy that is offered provides the basis for a further choice, and the idea of a building that can be experienced in its entirety in only one way is an absurdity. It is impossible to banish the imaginative ordering of experience that I have described: the experience is active even when it is compelled" (Scruton, 1979, p. 94-95). Aesthetic experience development requires not only objects with aesthetic potential, but also attention by viewers who synthesize the cognitive elements necessary for the process. Aesthetic value does not occur on its own in a vacuum, "… it is impossible to separate the experiencing subject from the experienced world; subject and object are reciprocally intertwined; the sensing subject cannot be separated from the sensed material, and the viewer cannot be separated from the viewed but participates in it and is influenced by it" (Folkmann, 2010, p. 42-43). The role of the viewer in an object's aesthetic value is repeatedly emphasized, a determining factor in the success of and consequent aesthetic experience. Scruton (1979)

recognizes the variability in object assessment, based on individual aspects as well as a combination of several qualities, cognitive and sensory, establishing that "even our visual experience is qualified by reference to the other senses" (p. 96). Holding viewers to an even greater responsibility, Mallgrave (2010) attributes an object's, or in this case an architectural form's, place and meaning to the viewer's mental narration of it: "For when our brains now strip architectural forms of their historical or symbolic trappings, we can view architecture simply as a dynamic and confrontational narrative explicating this animate drama of materiality fending off gravitational forces. We, as it were, animate architectural forms through our representation of its material will" (p. 60). With this, exploration into what role the non-visual assessments have in the process towards aesthetic experience can be begun.

Going the beneath the visual surface, design objects can provoke ideas and concepts, each contributing to the development of perceptual qualities and modes of unconcealment, eventually gaining momentum to achieve aesthetic experience. The importance of conceptual depth is emphasized in the Folkmann's (2010) discussion of Maurice Merleau-Ponty's incarnated ideas: "every piece of design contains an idea, a dimension of immateriality; vice versa, design is only conceivable as something concretely manifested – when speaking of immaterial design… The structure must, however, be elaborated if it is to contribute to the field of aesthetic knowledge… a matter of *communication*, that is, specifically, how the relation of manifestation/idea displays itself in design" (p. 46). The viewer's attention to the object elaborates upon the initial qualities of the object, participating in a communication with the object. However, in order for an object to be considered beyond intuition, some quality of a striking nature should be present, as Folkmann (2010) describes: "when design artifacts are noticed and appreciated, it is more often for their *aesthetic* qualities than their practical or

functional ability to solve more or less complex or well-defined problems" (p. 40). Adopting principles similar to those established by Seel, Scruton also agrees that in order to initiate an object toward aesthetic experience, the object must be identified as something with aesthetic potential, a 'specialness' allowing and providing for a moment of thought beyond the basic intuitive visual intake. While this point becomes clear, what the quality or idea generating element responsible for initiating the communication is becomes the question. Folkmann (2010) is aware that "… the question now relates to the object itself, asking how the object in its sensual being points to a level of idea content or meaning, which, in a complex process of displacement, it simultaneously contains and conceals" (p. 47).

Part of the answer to this dilemma is discussed by Scruton, identifying unity as a key factor, as also emphasized by Dewey. He states that in order for a significant experience to be had which results in an understanding of the object and thus aesthetic appreciation, the cognitive process must provide a unity of all internal and external elements. "So far I have spoken primarily of an *experience* of architecture, and have presented the problem of the unity of architectural effects as though it were a problem about the internal structure of experience. So why speak of 'understanding' as the source of unity? In fact the question answers itself. It is one of the most striking features of imaginative attention as I have described it, that experience and understanding follow each other. An intellectual grasp which leads to no experience of unity is not yet an act of understanding" (Scruton, 1979, p. 101). Like Dewey's assessment of an experience being derived from an object's journey and consummation, Scruton relies on understanding and unity to fulfill aesthetic experience. Linking this aspect to the fundamental concept of thought beyond visual assessment, Scruton (1979) also suggests that intellectual components which fuel the search for understanding, unity, and aesthetic experience may be

hidden beneath the visual surface, the suggestion of which calls the object out as 'special': "…one can also begin to see how the notion of a *correct* experience might arise, the notion of an experience that leads to an understanding and appreciation of the building. For it is surely the presence of this unseen entablature that leads to the serene horizontal movement of S. Spirito, and which accounts for its superiority over the same master's interior at S. Lorenzo…" (p. 92). In his discussion of how art traditionally achieved aesthetic value, Folkmann (2010) also cites something which is beyond comprehension when relying intuitive assessment, as art "can represent or contain something that is otherwise unrepresentable or incomprehensible, thus functioning as a medium for an otherwise ungraspable surplus of meaning… It produces its own transcendence of meaning that is not directly represented by the work of art but comes to expression as an otherness…" (p. 48). The indirect and subtle qualities beneath the visual surface catch the viewer's attention, delivering the object to realm of aesthetic possibility.

Based on the theories of these philosophers, and by others asserting that the new aesthetic theory can be applied to non-art object, it is obvious that design is a natural vehicle for and mode through which to experience aesthetic value and appreciation in the everyday. To elevate design objects to those with the potential for aesthetic experience, imbedded elements of and opportunities for pause to formulate perception which develops into such an experience is required. There must be something to the design object that will take the viewer beyond the visual exterior, suggesting the presence of unseen elements waiting to bring forth the object's being in an act of unconcealment. For those design objects that truly are present in the everyday, providing knowledge of its origin may provide exactly that, involving the viewer in its journey.

2.3.2 Barriers to a Sustainable Design Aesthetic: The Problem with 'Sublime Nature'

In many cases, the origins of design objects can be traced to its artistic development as a design, as well as to its manufacturing roots. In the current study, these roots are viewed as environmental factors which may or may not contribute to the object's sustainability. As defined by the Environmental Protection Agency, "sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations" (2012). Combining the new aesthetic theory with environmental factors concerning an object's sustainability may be considered as and provide a basis for what will be called 'sustainable aesthetics'. However, traditionally any consideration for the environment was directly attributed to nature, which, as traditional aesthetics, has a history of misguided principles and confusion. The harmony of human and nature existence required for successful sustainability has been and still is a struggle. As long as the aesthetic in the traditional context has been determined by intuition, and measured by pleasure and beauty conveyed by visual cues, nature has also been divided into the sublime and the overlooked. In light of ecological injustices and devaluation, and evidence of historically and spiritually based neglect of all nature, the definition of natural beauty need also be analyzed and redefined in relation to the new aesthetic.

Reclaiming nature's relationship with truth and justice can broaden the scope of aesthetics to include knowledge based cues. The foundation of reason and intellectual consciousness can be the mark of aesthetic value, justifying the perception of such by its essence rather than subjective visual appeal. The relationship of nature and aesthetics has long been discussed by philosophers and theorists who have provided various interpretations of aesthetic value and what role nature should play in aesthetic considerations. The need for such redefinition

grows stronger as technology gains power, slipping from human control, and destroying the nature it is meant to control. A natural balance can achieved by abandoning preconceived ideals of controlled nature and fears of wild 'otherness'. Following the philosophical and theoretical approaches through many texts, a basis for such a call is made evident, providing insights into how to overcome human desires to achieve intellectual appreciation for nature and a natural balance with nature.

As evident from the previous sections, the concept of aesthetics has greatly changed over time, yet it maintains many consistent principles in the human perception of beauty and nature. The beginnings of beauty as an important element to be desired in the natural world can be traced through religious texts to the account of the creation of the Earth in the book of Genesis in the Bible. While the creation story provides important fundamentals for the Christian faith in regards to God's power and the law of obeying God's will, it also provides guidelines for a very anthropocentric relationship with nature. With inseparable ties to religious beliefs, humans have been hard-wired from the beginning to desire pleasant Eden-like nature: "And out of the ground made the Lord God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and the tree of knowledge of good and evil" (Genesis 2:9, New Revised Standard Version). Each of these nature elements maintains some sort of purpose for humans- as a God given right to be served by nature. This idea of 'pleasant to the sight' sparks and perpetuates the quest for pure beauty in the form of nature uncorrupted by 'wilderness'. Even the concept of the 'garden' of Eden predisposes humans to work towards and find comfort in managed nature. From the creation story, when God cast humans out of his utopia for eating the forbidden fruit, condemning humans to survive in the 'wilderness', humans have continued the search for bucolic and spiritual examples of nature. When available, humans

have ‘managed’ nature to mold to this ideal perception of beauty. Further, the story revolves around the concept that God created every aspect of this Earth, blessing it to “be fruitful, and multiply” in order to sustain human existence (Genesis 1:28). The reliance on God to sustain Earth’s resources may well be a contributing factor to the current blindness of society toward the dwindling status of the quantity and quality of God’s bounty. The concept of sustainability for the sake of the Earth’s wellbeing remains foreign, as it is not a tenet of good vs. evil mapped out for Christians in the Bible.

Maintaining the garden vs. wilderness mentality fostered by the creation story, French architectural theorist Marc-Antoine Laugier (1977), in his *Essay on Architecture* provides principles for architecture as well as garden design. While many of the aesthetic values he outlines for gardens and his critique of the gardens of Versailles are most likely widely accepted, they support the management of nature for human pleasure. The gardens of Versailles are criticized for employing a “strict system of regularity” and a “grand manner of symmetry not at all suitable for beautiful nature” (Laugier, 1977, p. 138). On the other hand, the surrounding landscape is deemed “a repulsive wilderness” (p. 136). Detest for the gardens of Versailles seems to be based on undesirable levels of control over nature. Laugier calls for a balance of nature that utilizes the pleasantries of nature and discards the rest. The desired garden design falls somewhere between these vastly different uses of nature with “pleasant carelessness” and “rustic character”, “combining what is most agreeable in nature with the resources art has to embellish nature itself” (p. 141). Laugier continues the ‘wisdom’ of Aristotle (1999) who also promotes this balance: “A master of any art avoids excess and defect but seeks the intermediate” (EN2.6.1106a.4:29-30). While yes, such a garden would align with many elements of a traditional aesthetic in terms of beauty, the elimination of wilderness from the perception of

beauty continues the human need to manage nature, establishing humans as the controlling species of an uncontrollable force. At the same time, the quest to design such a pleasant garden stems from an innate desire to experience nature as something greater than human. In order to do so, it is believed that human genius must be imposed onto nature in order for it to 'perform' for the delight of humans as an element of enchantment and escape. Laugier hails a prince in Europe as being a "man of genius and taste… devoting himself to every kind of attractive and ingenious invention" (Laugier, 1755, p. 144). In this applause to the prince, Laugier attributes all great beauty in nature to human intervention within it and use of it. While such a hybrid setting may accomplish the desired enchantment, the designed garden restricts this experience to the safety of a controlled environment. Again, the fear of wilderness restrains humans, in this example specifically Europeans, from truly experiencing nature, allowing aesthetic desires to compromise nature.

Continuing the struggle to define beauty as well as beauty in nature, Christopher Wren attempts to apply architectural order to nature, or rather, find order in nature from which to base architectural aesthetic principles. He defines beauty as "a harmony of objects, begetting pleasure by the eye" stemming from two causes: customary and natural" (Wren et al., 1903, p. 236). Customary beauty is the perception of beauty based on familiarity and personal inclinations. While important in developing something holistically beautiful, Wren attests that within it "lies the great occasion of errors" (p. 237). Determining beauty on predispositions without knowledge or natural considerations can lead to false beauty, or in many cases, ecological injustice. On the other hand, natural beauty adheres to the geometric 'law of nature', focusing on uniformity and proportion. Wren's observation of natural beauty states that "there are only two beautiful positions of straight lines, perpendicular and horizontal: this is from nature" (p. 237). While

traditional beauty inclinations would find many other configurations aesthetically pleasing, these strict laws of order are derivatives of nature from the canvas with which humans first became accustomed, engrained deep within human perception. Almost subconsciously, the human eye is aware of the unnatural discord that other forms present. Designing with obvious or underlying elements of natural geometry has allowed many constructions to become today's ancient beauty, possessing longevity in form. Through displays of natural beauty, transcending customary beauty, human structures have lasted many lifetimes, not only honoring nature in form, but also in resources as valuable, minimizing unnecessary use of nature's resources from rebuild. Wren does also discuss a sort of balance of qualities that express beauty, but unlike Laugier, pulls that balance from its natural occurrence in nature: "Views contrary to beauty are deformity, or a defect of uniformity, and plainness, which is the excess of uniformity" (p. 237). With this natural balance, the essence of nature remains intact, not deforming it or stripping it down to conform to the customary idea of beauty. For successful structures, the framework must exemplify this approach of natural beauty, adhering to the law of nature and the human perception of beauty engrained deeper than customary beauty.

Also celebrating the essence of nature, Reverend William Gilpin extends the concept of natural beauty by discussing the picturesque. He states that "roughness forms the most essential point of difference between the beautiful and the picturesque", asserting that direct marks of nature will elevate something from being merely beautiful to being picturesque (Gilpin, 1792, p. 6). While the proportion and order Wren promotes does not find its way into this definition of picturesque beauty, the concept is similar. The abandonment of this natural beauty theory is due in part to the loss of that understanding of mastery of proportion: "we inquire for them in vain" Gilpin says, 'them', being the lost rules used by the ancients to mold beauty out of natural

geometry (p. 32). Without this knowledge, the focus has been redirected to the emotional connection to nature stemming from the raw and rough, as the essence of nature known to current humans. The essence of nature, whether it be order or roughness, is an essential quality providing beauty. The emotional connection required to become aware of this is more easily attained by philosophers and artists of Gilpin's time, able to search out and still find such examples.

Over time, the awe of nature as inspiration for picturesque perceptions seems to become less appreciated and less apparent. Once a sublime example of nature is discovered, over time, its majesty diminishes as its presence becomes common and underwhelming. In the continued search for sublime nature to fulfill the need for an assumed aesthetic thirst, humans become desensitized to sublime events. The once sublime example of natural beauty is forgotten, no longer seen as valuable sublime nature, yet still outside the realm of everyday nature to be appreciated. As human civilization grows more accustomed to city life, the importance of nature is elevated, yet also underestimated. Ralph Waldo Emerson (1836) verbalizes his experience with nature in his excerpt *Beauty,* in which he begins by explaining that everything in nature is beautiful, by direct interpretation or by the corrective nature of light and the human eye: "There is no object so foul that intense light will not make beautiful" (p.20) . In the larger picture of nature, anything not overtly beautiful on its own become beautiful as part of the overall landscape. In relation to the work schedule of city living, nature provides relief, but its true beauty, unobstructed by "corporeal benefit" occurs at morning hours where the expanse of the world is lit up for the rising sun (Emerson et al., 1836, p. 21). Again, light can highlight and hide elements of nature to create an enchanting view. However, the idea that industrial life detracts from the perception of nature's beauty is disheartening. Thoreau states that each moment of

nature must be seen as beautiful to become aware of the movement and impermanence of it: “To the attentive eye, each moment of the year has its own beauty… which was never seen before, and which shall never be seen again” (p. 23). Just as Gilpin arrived at an attainable connection to nature through emotional picturesque beauty, human progress threatens the appreciation of it. In pursuit of economical success and sustaining human life in the new industrial world, nature not only becomes even less of a concern but is physically removed from everyday experience. The danger of this is evident to Emerson as he hints at the possible consequences of such dismissal, saying that “if too eagerly hunted, [nature elements] become shows merely, and mock us with their unreality” (p. 24). In the advent of such consequences, Emerson identifies virtue and intellect as characteristics that will preserve nature and its beauty. The presentation of such qualities marks a turning point from nature as beauty to be used and emulated to nature as beauty to be honored and preserved. Emerson divulges the challenge that as “Nature stretched out her arms to embrace man, only let his thoughts be of equal greatness”, calling for a virtuous man as one “in unison with her works” (p. 27). Virtue, therefore, is the quality in a person which knows to search for and will find partnership in nature, valuing human and nature the same, to sustain life for both. However, in a somewhat cyclical nature, this can only be achieved through intellectual attention to nature’s beauty.

This is most expressly done through art, which “does nature work through the will of a man filled with the beauty of her first works” (Emerson et al., 1836, p. 30). With the intellectual understanding of nature’s beauty, art can celebrate the true essence and original state of nature, preserving it for future reference even after its original allure in context has been forgotten. Aristotle (1986) leads to this point in his analysis of the ‘nature’ of crafted objects pointing out that “if you planted a bed and the rotting wood acquired the power of sending up a shoot, it

would not be a bed that would come up, but would-which shows that the arrangement in accordance with the rules of the art is merely an incidental attribute" (book 2, para. 9). In the case of the bed, its construction may or may not emphasize or even show elements of being wood, but either way, the bed has an eternal relationship to its material composition. Relationships such as this give objects their natural essence. With such innate engrained qualities, why distort the material basis of such objects beyond recognition? The natural qualities will prevail and as Emerson eludes, an intentional partnership of the material and the form is a virtuous human act.

As Emerson creates the need for virtue and intellect for the valuing of the essence of nature out of the decline of appreciation for nature, Jean-Jacques Rousseau earlier reiterates this essential relationship, also calling for a revisiting of sorts to nature. In The *Reveries of a Solitary Walker*, Rousseau (1971) describes his walks through nature as "luxurious idleness"- his escape from the domesticated world and as the source of his emotional attachment to nature's beauty. He is awakened to the beauty of nature, in part by the polarization of environments he witnesses from domesticated cities to wild landscape, and in part by his ability to take the time to open his eyes to that difference. He is aware of the degrading forces of society and its desires, from which he strives to be "delivered from all the earthly passions to which the tumult of social life give rise, my soul would frequently soar above this atmosphere and have converse beforehand with the celestial intellects" (Rousseau, 1971, p. 116). With open eyes and open mind, "imagination which refuses itself to painful objects, let my senses yield themselves to the light but sweet impressions of surrounding objects. My eyes wandered ceaselessly from one to the other, and it was not possible that in so great a variety it should not find something to hold them despite themselves, and keep them fixed for a long period" (p. 139). The idea of 'sweet impression' links

to the power of light which Emerson attributes with being able to create total beauty out of all parts. Nature as a whole is beautiful, often awe inspiring. Regardless of his personal preference for some elements, Rousseau attests that true pleasure in nature can only stem from the elimination of bodily interests, and so these preferences do not affect his actions or attitudes. Reliance on the mind for evaluation of nature can ensure an all encompassing perspective of nature and with the ability to appreciate his surroundings, Rousseau uncovers and identifies many of the non-partnerships between nature and humans and the lack of intellect which forges this un-appreciation.

As culture has moved further away from its connection to nature, and as the otherness of nature becomes more distinct, divine experiences in nature became the mode of experiencing nature. As something outside of human control, the awe-inspiring qualities of nature become the focus of what is considered nature, neglecting the immediate nature of everyday human life. Edmund Burke (1757) emphasizes this divide in *Ideas of the Sublime* where terror, a passion evoked by the power of nature and its ability to inflict pain or death, initiates the otherworldly experience humans crave: "The passion caused by the great and sublime in nature when those causes operate most powerfully, is astonishment; and astonishment is the state of the soul, in which all its motions are suspended with some degree of horror" (p. 41). The trend of going beyond civilization to witness nature, in one sense, preserves those extraordinary areas of nature for their grand significance to humans. However, in order to maintain the sublime qualities of nature, thus preserving them, the mystery of their existence must remain intact for "when we know the full extent of any danger, when we can accustom out eyes to it, a great deal of apprehension vanishes" (Burke, 1757, p. 43). Again, the wild, untamed, enormous qualities, those furthest from human civilization, become the subject of fear and curiosity. Burke

references this as a passion, while others attempt to impose technology on it to bring such power to a level of comfort through domination. The obscurity of sublime nature is clarified by technology and science, overcoming the limitations of un-aided humans. But, without such devices, the mind is left to conceive of such greatness through imagination. For instance, Burke (1757) describes one quality of the sublime as vastness, where the "greatness of dimension" or "vastness of extent or quantity" at extreme levels activates the mind to try to fathom something behind human possibilities (p. 51). Or, infinity which "has a tendency to fill the mind with that sort of delightful horror", where the "eye not being able to perceive the bounds of many things, they seem to be infinite, and they produce the same effects as if they were really so" (Burke, 1757, p. 52-53). Burke relies on the mind's ability to create sublime in nature from the unknown; perpetuating the separation of humans and nature. In the way that the evolution of the relationship between humans and nature had been progressing, the desire to find the sublime in nature to provoke a level of interest and find value in nature was in accordance with humans views of the time. However, by elevating the fear of nature to sublime terror, and framing nature as such, some elements of nature became prized landmarks of awe-inspiring proportion, as with the National Parks movement in North America, while others were discarded as undesirable.

The truly sublime examples of nature, due to the increasing use of technology, become the last examples of nature seen as greater than human or above human control. Society has created such as system where this imbalance is rationalized into acceptance, and in the process, conceals the true essence of nature and what it represents for life. "The coming-to-pass of oblivion not only lets fall from remembrance into concealment; but that falling itself falls simultaneously from remembrance into concealment, which itself also falls away in that falling" (Heidegger, 1977, p. 46). Summing up the cyclical nature of human-nature relationship,

Heidegger explores the idea that in the movement towards forgetting the essence of nature and the holistic wonder of it, its overall beauty restricted to a few sublime occurrences, room is made for the possibility for nature once again to reveal its full glory. Through the act of forgetting, the enlightenment of nature's true essence is more powerful and effective than it would have been otherwise. This insight into nature also reveals many other truths, as all elements are intertwined as the perception of one creates and changes the perception of another. "The coming to presence of technology will be surmounted in a way that restores it into its yet concealed truth" (p. 39). The presencing of humans will also reveal certain truths, as "modern man must first and above all find his way back into the full breadth of the space proper to his essence" and with the enlightened truths of these entities, the rightful place and true essence of each will be delivered (p. 39). These truths, however, are not those as determined by scientific fact void of human values and philosophy, but rather are the proper role that nature, humans and technology hold in the natural balance of existence. With such a balance, nature can be seen as beautiful, yet as something to be respected; appreciated for its essence rather than what humans perceive it should be.

With a clear evaluation of the state of perception of beauty over time and its evolution coming into city civilization, the connection to nature has increasingly become a struggle, with appreciation and knowledge at the forefront to determining how to achieve this in a humanized world. In the chapter *The Catastrophe of Liberation*, Marcuse (1964), similarly to Heidegger, discusses how societal norms have allowed the mind to camouflage the negative aspects of the system to where "the tension between appearance and reality melts away and both merge in one rather pleasant feeling" (p. 230). In the interest of happiness, a false realism has fixed itself in the system, complacent to the ills of the Earth. The search for truth began as a philosophical and

scientific quest, with a mind for imagination and endless possibilities. Once science began finding answers to the inner mechanical workings of the Earth's beings and functioning, scientific fact replaced imagination, no longer curious of the philosophical theories behind them. Science and technology have continued to progress without consideration for human values, and have grown beyond human control, as the power and consequences of such one-sided creations are not yet understood. Marcuse calls for a realization of this blindness, with a shift from attempting to overcome nature out of fear of such a strong force, to a mastery which forges a sense of appreciation and true value. "If Nature is in itself a rational, legitimate object of science, then it is the legitimate object not only of Reason as power but also of Reason as freedom; not only of domination but also of liberation" (Marcuse, 1964, p. 237). The distinction between domination and liberation is the important factor in the balance of human to nature interaction. However, in contrast to other theorists, Marcuse (1964) asserts that "glorification of the natural is part of the ideology which protects an unnatural society in its struggle against liberation" (p. 238). The glorification continues the separation of nature and humans, unable to coexist as a partnership. Instead, "the attainment of autonomy demands conditions in which the repressed dimensions of experience can come to life again" (Marcuse, 1964, p. 248). From the acknowledgement of the flaws in the human created system, that pacification has closed the mind to truth, liberation of humans from this view and liberation of nature from the inappropriate and damaging image humans have forced nature into can occur- at which point, a natural balance and holistic system will emerge. This will develop into innate knowledge that will correctly align nature's purposes with human uses.

With the importance of intellectual consideration and quest for knowledge made clear for the true understanding of, and collaboration with nature, the specifics of that knowledge must

also be addressed. Bateson (1970) introduces the concept of 'difference', where organisms/humans are aware of the differences between objects, which provides for definition of those objects. However, difference is an abstract matter as it cannot be quantified or predicted, making difference an infinite quality of each object. Humans make judgments of things by focusing on specific differences which determine the view or the information received, and thus the aesthetic quality perceived: "the most elementary aesthetic act is the selection of a fact" (Bateson, 1970, para. 19). The error in the current human model is that there "we commonly think of the external 'physical world' as somehow separate from an internal 'mental world'", overlooking that these differences in the physical world affect and are affected by the mental world (para. 23). This has led to the reliance on the mental world, as primarily formed by past experiences, rather than actually assessing the physical world. Bateson also adopts the concepts of pleroma and creatura worlds from Carl Jung, where "pleroma is the world in which events are caused by forces and impacts in which there are no 'distinctions'… in the creatura, effects are brought about precisely by difference. In fact, this is the same old dichotomy between mind and substance" (para. 28). Bateson lays out the method of thinking and the selection of knowledge which can lead to the proper natural balance required of all beings on Earth. By adopting a creatura world view, each difference is valued for its uniqueness and as a vital part of the whole: forming connections or pathways between every element. The hierarchy of those connections forms the true system in which every part serves a purpose. Human activities must not neglect those connections, remembering that "the individual mind is immanent but not only in the body… also in pathways and messages outside the body; and there is a larger Mind of which the individual mind is only a subsystem" (para. 64). Part of honoring those pathways requires a sense of humility in terms of life choices.

Confucian texts promote the value of understanding the connections saying that "the wise find pleasure in water; the virtuous find pleasure in the hills. The wise are active; the virtuous are tranquil. The wise are joyful; the virtuous are long-lived" (Confucius, 1992, book 6, ch. 21). The idea of long term good over immediate pleasures is evident in this, correcting the wasteful and disrespectful ways of those who, despite their wisdom, cannot grasp the delicacies of the system's inner workings which balance the Earth. A Buddhist text presents a similar ideology: "This is what should be done by those who are skilled in goodness, and who know the path of peace: Let them be… contented and easily satisfied, unburdened with duties and frugal in their ways, peaceful and calm, wise and skillful, not proud and demanding in nature" (Metta Sutta, *Loving Kindness*, trans. 1994, line 1-10). Humans are forever wanting more, exploiting and pillaging nature in the process. One need not be a Buddhist to adopt humility and to honor nature, and while the Confucian text advocates for the dedication of life to solidarity and meditation to achieve a virtuous state, the concepts can be translated to the world outside such isolation. Humans must realize themselves to be a part of the system, not an entity separate from nature. With such a mindset, simple knowledge can grow to intellectual virtue, upholding a humble partnership with nature.

Architecture and design provide an ideal venue for the culmination of such virtuous principles into application. Alberti was aware of the necessity of humility in architectural design, a criterion of good architecture. He criticizes other works of his time for falling victim to the frivolous desires of kings and queens, resulting in extravagance, notwithstanding the test of time. Conscious of the powers of nature and the ability of natural forces to conquer man-made structures, Alberti (1986) considers that "we ought never to undertake any Thing that is not exactly agreeable to nature" (book 2, p. 23). With an intellectual approach to architecture, the

longevity of structure is of upmost importance, designing modest and cohesive structures that fit the location and the natural elements it is exposed to. Through such designs, as with the principles laid out by Christopher Wren, the use of natural resources is limited to immediate use, not having to unnecessarily be replaced or rebuilt due to changing style or inadequate craftsmanship. Within structural design, the materials can also celebrate the essence of nature as organic form. Wren's geometric principles were limited by the technology of material manipulation of the 17th century. With the introduction of technologies to create more flexible forms, architectural and artistic expression experienced a "gradual structural shift from the geometric to the organic… the form arising out of work performance leads to every object receiving and retaining its own essential shape" (Häring, 1932, p. 361). The freedom to express objects as dictated by the object rather than the artist's individuality, creating a "Gestalt, a total form, a work of spiritual vitality and fulfillment, an object that belongs to and serves an idea, a higher culture", celebrates natural form (p. 363). With the ability to form human environments in the image of organic, natural forms, nature is reintroduced in visual form. The geometric properties once relied on required associative knowledge for the nature appreciation related to them, whereas organic forms can display direct inspirations from nature. However, the process of organic form also relies on artists and their interpretation of the form, thus forever linking humans and nature.

At a larger holistic scale, Ian McHarg (1969) discusses the evolution of place in the development of Washington, D.C.: "We require to see the components of the natural identity of the city as a value system, offering opportunities for human use. However, in addition, it is necessary to submit the creations of men – buildings, places and spaces – to the same type of analysis and evaluation. It is, therefore, essential to understand the city as a form, derived in the

first instances from geological and biological evolution" (p. 175). The historical geological and biological context of place provide for features unique and irreplaceable to each area. By embracing the distinctive qualities innate to the land, architecture respectfully placed in it, "often results from the preservation, exploitation and enhancement, rather than obliteration of this genius" (McHarg, 1969, p. 175). In doing so, the elements of the site and of the architecture and city plan develop an identity of their own with great value to the society and nature cohabitating there. Most importantly, it is often the discrete elements that are the most unique and contribute to this identity and thus the success of its aesthetic attainment. As McHarg's analysis of this city reveals, the context of place greatly contributes to the value and beauty of design. The unique nature to which its beauty is attributed is directly linked to adhering to the essence of nature, an appreciation for its being, and the knowledge and awareness that such cohesion is required.

The idea that structures can preserve the area is shared by Heidegger (1971) in the chapter *Building Dwelling Thinking*, in which the true meaning of 'to dwell' is explored. Conscious thought brings about a marking of the place considered, into context for the fourfold: the earth, sky, mortals, and spiritual realm surrounding and comprising its existence. A dwelling goes beyond a structure by embracing these elements, as "dwelling and building are related as end and means…building is not merely a means and a way toward dwelling – to build is in itself already to dwell" (Heidegger, 1971, p. 145). Experiencing a place through its connections to the fourfold bring it to status of dwelling, accepting the four elements as a oneness together, rather than separating mortals from 'otherness'. Through the experiencing of place, or presencing, the dwelling acts as a point of unity, breaking down that divide, that separation. In doing so, beauty can be redefined to apply to all things- those things wondrous, as well as those things discrete and subtle. The understanding of this true beauty is revealed through the consciousness and

intellect provided to the dwelling upon its inception as such. The fourfold also includes the divinity sought after by so many, bringing it to place and allowing the value of nature to have a spiritual essence. In fact, "staying with things is the only way in which the fourfold stay within the fourfold is accomplished at any time in simple unity"; meaning that a dwelling point marks a gathering of the fourfold (p. 150). However, the purposefulness and consciousness associated with a building which elevates it to dwelling are the first step, and thus so are intellect and appreciation, revealing the true essence of the location. "Dwelling… is the basic character of Being in keeping with which mortals exist. Perhaps this attempt to think about dwelling and building will bring out somewhat more clearly that building belongs to dwelling and how it receives its nature from dwelling. Enough will have been gained if dwelling and building have become *worthy of questioning* and thus have remained worthy of thought" (p. 159). In identifying consciousness and intellectual evaluation as essential elements for elevating building to dwelling status, Heidegger also establishes the basis for his interpretation of the new aesthetic theory, as "the representational, expressive, formalist, and conventionalist theories of art largely miss the phenomenon they are meant to elucidate" (Gilgen, 2011, p. 26).

With purposeful and intellectual formulation of the built world in collaboration with and in celebration of the natural environment, the beauty formed is beyond common beauty; it is aesthetic. Through knowledge enlightenment, opening the eyes of humans to see the true essence of nature and the built environment, aesthetic appreciation can be redefined to include all nature. By becoming aware that all nature holds aesthetic value uncovered by intellectual consciousness of it, the ethical implications of actions and means which do not honor such value will not be tolerated. Also, by this revealing of aesthetic qualities in all of nature, humans will no long struggle to dominate nature for fear of its great and unknown forces, and ultimately death, and

will not discard seemingly insignificant examples of nature. Instead, the separation of humans and nature can be lessened, approaching a better balance of partnership and appreciation.

2.3.3 A Sustainable Aesthetic

Having established a new aesthetic theory and a corrected sense of environmental value and importance, the concepts can be combined to form a 'sustainable aesthetic' for design objects. To elevate to aesthetic status through experience, design objects are subjected to the same process as described as applicable to everyday objects, and as with such objects, the process can only begin in those containing the potential to spur the viewer beyond intuition. In design, "Objects that have a wide range of characteristics and meanings, including the profound, greatly surpass those of basic, utilitarian goods…" (Walker, 2006, p. 49). While Walker does not see this potential in all design objects (in prayer beads, but not pottery), when paired with the proper knowledge or intellectual stimulus the redefinition of aesthetics by way of experience justifies its extension to other design objects. In relation to sustainability, designers have the power, by imbedding qualities of sustainability within the object that promote the experience process, to engage viewers and design consumers in a more sustainable lifestyle by virtue of product choices. "A reassessment of physical products is required, together with a creative re-engagement with 'things', if we are to find long lasting meaning and value in our material world whilst simultaneously alleviating the damaging consequences of contemporary consumerism. *Design* can be a key component in this; how we design products, the assumptions we make and the preconceptions we have when we design, as well as our notions of good design, all have to be questioned" (p. 53-54). With design as the ideal vehicle for aesthetic experience and promotion of sustainability and environmental consciousness, the relationship of design and

viewers/consumers, and that of design and designers and their intent can be explored, further strengthening the potential for a sustainable design aesthetic.

To begin, it should first be established that design itself has also had hindering traditional roots. These assume that design is based on a material culture and consumerism as means to material wealth and comfort, and that design functions to produce aesthetic objects where aesthetic is defined in the traditional sense. Identifying design objects as having a purpose beyond these utilitarian goals not only provides grounds for aesthetic experience, but also has the potential to change the meaning of consumerism.

> "Instead of viewing aesthetics as a direct aim, it can also be considered as an outcome of an approach to product design that has different objectives. Industrial design can then focus on the meanings of material culture and thus develop and evolve. Ironically, in doing so, aesthetic definition will also evolve, unconstrained by the customs and precedents of product definition. In other words, aesthetics will begin to be more profoundly related to the whole of what a product *is*. Consequently, the aesthetic definition of a product, when derived from a different source, will, without doubt, challenge current norms. It will find its own place as an outcome rather than an all-consuming aim. In doing so, product design can respond creatively to the critical issues of our times in ways that are thoughtful and inspiring" (Walker, 2006, p. 10).

The internal properties of a design object which provide for such potential are intrinsic qualities that act as a means of communication calling itself out to the viewer as something worth additional consideration. With such qualities there are elements to be critiqued, discussed, and assessed that are not based on pure personal affinity for beauty and pleasure. "The intellectual and aesthetic issues of design, and their relationship, provide the basis for creating,

understanding and critiquing products. In terms of sustainability, the relationship between theory and practice is such that the ethical and environmental imperatives of the sustainable rationale can inform the design process and affect the intrinsic properties of the product. In turn, this will affect one's aesthetic experience of the product and suggest a basis for sustainable aesthetics" (Walker, 2006, p. 186). While Walker here recognizes that such elements in a design object are often products of the design process, which will be explored later, the overarching concept of intrinsic properties in design having an effect on aesthetic experience and thus sustainable aesthetics when properly displayed is still highlighted. The idea of design object-to-viewer communication creates the line through which the intrinsic properties of the object are displayed for the viewer. These objects project an innate call to the viewers offering themselves up as something more than a source of visual pleasure or an item of consumption. "Our aesthetic appreciation of an object cannot be reduced to quantitative criteria, but is based on an holistic contemplation of the intrinsic properties of the object and is informed by a host of other information, knowledge and values we bring to the experience of an artifact… The aesthetic experience of an object is not simply an experience of sensuous pleasures but is, in part, a reasoned response that draws upon, or refers to, values" (p. 188). Again, as established in the redefinition of aesthetics and a heavy reliance on Dewey's consummation of a process to create *an* experience, there are several factors that bring to life the intrinsic qualities of the object.

In the case of sustainable aesthetics, there is one primary goal as to what the aesthetic experience should accomplish, placing such objects in a slightly different category. Not only should these design objects be considered as visually appealing, but they should enlighten the viewer to their environmental contributions, further elevating their aesthetic value: "…our intent when designing products and services should be to cultivate ecological literacy in their users:

new artifacts should communicate the value of broad knowledge, nurture a sense of connection between people and their environment…" (Stegall, 2006, p. 60). One problem, however, is that without specific knowledge calling a sustainable design object out as such, the sustainability element will not be considered in its aesthetic assessment. This circles back to the responsibility of the designer before the object reaches the viewer/consumer. Still, how can a holistic sense of an object's sustainability be established when visual cues can be limiting or difficult? Anne Thorpe (2010) reiterates this issue: "Although eco-design may sometimes link consumers to downstream consequences of products (e.g., by using recognizable recycled material), few eco-design approaches link consumers to upstream social and environmental consequences of making products, perhaps because many designers are as distant as consumers from these upstream effects" (p. 7). She identifies that while there are some occasions when the design object displays sustainable characteristics in its physical surface to be assessed visually, there are many more pertinent qualities that are not visually displayed, such as manufacturing process and product origin. To initiate the cognitive process for these design objects, designers must work to incorporate intellectual components in the objects. Interestingly enough, for sustainability, this is not only an element displayed in the final product, but a process ingrained in the design choices: "This structure of investigating *how* an idea can be reflected in the design and how it can create a surplus of meaning (that is, the overall aesthetic question of how design relates to meaning on a general level) can not only be described in design, it can also be used more actively (by designers) as a tool of reflection in the design process" (Folkmann, 2010, p. 51). In the case of design and architecture, this can be accomplished by suggestive properties as explored by Scruton, which spark consciousness where the mind can develop its own story or interpretation of the object. For sustainable design objects, the story requires more direct information than what

can be inferred suggestively. One way of presenting this information for developing the narrative necessary for aesthetic experience is through words. Words can ignite cognitive processes in a similar creative manner as visual suggestion, but in a more specific direction: "What makes words so "valuable" to human thinking, he [Arnheim] ventures to surmise, is essentially their metamorphic power, that is, their capacity to evoke visual images that are the means by which the mind categorizes things and performs its acts of thinking" (Mallgrave, 2010, p. 93). Such words can display the non-visual qualities of a design object, providing that object with aesthetic potential: "…information about intentions is an integral part of our experience of artifacts, and intellectual information about an object can be aesthetically relevant if it draws attention to those intrinsic properties that are relevant to the aesthetic experience" (Walker, 2006, p. 187).

Incorporating words as information for sustainable objects works to qualify them as having aesthetic potential. The words also bring about the consciousness calling such objects out from the rest of the everyday as ones for further consideration: "Carolyn F. Strauss and Alastair Fuad-Luke suggest that designed objects and architecture can work to slow us down and help us regain temporal stability, partly by enabling us to shift value from material objects to experiences that perhaps help us tune our consciousness" (Thorpe, 2010, p. 10). For design objects, such consciousness and inferred importance trickles up to become part of the viewer's life, something designers should be aware of and work to maximize: "The alternative to this unconscious design is recognizing that any artifact makes an argument for how people should live and what values they should hold and consciously designing products that encourage positive, constructive ways of life" (Stegall, 2006, p. 58). By making provisions for sustainable objects to display their sustainability, this becomes an act of enhancing its own sustainability though greater aesthetic affect. Establishing a connection between the viewer and the object and making sure that it can

be called out to consciousness helps to ensure the object's longevity. "It seems that a very powerful sense of personal possession-ness [longevity] can be attributed to an artifact in which there are strong, interwoven relationships between the object, physical activity, tactility, visual understanding, aesthetic experience, meaning, inner growth and allusions to the numinous" (Walker, 2006, p. 48). Where aesthetic experience and a object to viewer relationship is possible, the object may also be deemed valuable, increasing appreciation for and care of the object through understanding: "Our inability to participate in the creation of our material goods is critically related to these notions of meaning. In terms of our material world and our possessions, when we are unable to contribute we becomes reduced to mere consumers. Our lack of involvement in the design and making of objects, and our consequent gap in understanding, undoubtedly affect how we value them" (p. 54).

Following the development of the design object to incorporate intellectual stimulus for a cognitive construction towards an aesthetic experience, the object can be more fully assessed for its true nature. When the intellectual stimulation consist of sustainability factors, the viewer has the opportunity to follow through to complete aesthetic experience of the object which also then allows the viewer to assess the object based on sustainability value, which can lessen or heighten their appreciation for the object. "If we maintain our preconceptions, and look at and judge such objects from conventional notions of beauty and taste, then they can be easily ridiculed and rejected. However, our perceptions of an object can change once its basis is more fully understood. What may have been regarded as ugly, crude or undignified can then, potentially, be seen as beautiful and an embodiment of meaningful values. And, of course, the converse is also true" (Walker, 2006, p. 59). While Walker takes the dichotomy of preconceived vs. informed beauty to the extreme, suggesting that it is acceptable to design some objects to be inherently

‘ugly’, the valuable point made is that while cognitive elements can heighten the aesthetic value of objects, it also has the power to decrease the level of aesthetic value, if that information is negative or undesirable to the viewer. While aesthetic experience leads to a deeper understanding of and connection with the object, that understanding also has the potential to effect the result of that experience allowing the viewer to connect with that object even further.

2.4 Manifest vs. Latent Meaning

Having the groundwork for understanding the value of intellectual connection to an object to elevate emotional and sensory interactions, and ultimately develop an aesthetic experience, the framework for that intellectual component can be properly established. To do so, two primary fundamentals of meaning must be explored: manifest and latent. In a synthesis of the concepts laid out by Scruton and Goodman, Jack Elliott (1999) presents these “two main classes of references for meaning, manifest and latent. Manifest references are those that reveal themselves from within the work itself. They are derived from the "realm of appearances"[Scruton]. Latent references are those that come from sources outside of the appearance of the work and would remain otherwise hidden. This fact of their obscurity makes them easy to overlook, especially by those trained in matters of appearances. However, it is in this latter category where important yet intangible sources of meaning are found” (p. 5).

Further dissecting these references for meaning, Elliott (1999) uses the framework as laid out by Goodman to construct manifest references from four sources. These are denotation, or visual representation, exemplification, or literal expression, expression, specified as metaphorical expression, and mediated, or a chain of references rather than a singular direct reference. The qualities of exemplification and expression are explained by Goodman (1985):

> "Reference by a building to properties possessed either literally or metaphorically is exemplification, but exemplification of metaphorically possessed properties is what we more commonly call "expression"… I stress the role of exemplification, for it is often overlooked or even denied by writers who insist that the supreme virtue of a purely abstract painting or a purely formal architectural work lies in its freedom from all reference to anything else. But such a work is not an inert unmeaning object, nor does it refer solely (if at all) to itself… And most of these exemplified properties are also properties of other things which are thus associated with, and may be indirectly referred to by, the work" (p. 647-648).

Latent references, on the other hand, rely on intellectual processes. These latent properties are outlined to be evocation, or thoughts and feelings personal to the viewer not related to appearance, intention, or the quest of the work's creator, and ethics (Elliott, 1999; Goodman, 1985). These categories of latent references are the same general components of *an* aesthetic experience as proposed by Dewey, relying on several parts of viewer-to-object interaction which, when adequately uncovered and explored, result in a synthesis much greater than the parts alone. Latent references are not only outside the visual field of the object, but also go beyond the traditional viewer-to-object interaction. Opportunities for latent references are necessary to fulfill the ultimate aesthetic experience.

METHODS

3.1 Research Design

This study was designed to use the redefinition of aesthetics developed in philosophical and theoretical discussions as a basis for gauging aesthetic reaction of design materials in relationship to sustainability. While the move to address sustainable design under the terms of aesthetic theory has been made, the research to provide evidence for such a link was still needed. This research collected participant ratings of aesthetic reaction to nine interior wall surface materials. The experiment consisted of six independent variables in a nested sampling design. The variables specific to the participants constructed a 3x2x3 between groups factorial design. The first participant independent variable, level of information, had three levels (no information, information in the form of a fact chart, information in the form of a paragraph). The second, professional (or educational) field, had two levels (interior/architectural design, non-design), and the third, experience range, had three levels (student: undergraduate students, junior professional: 0-10 years of experience in current field, senior professional: 11+ years of experience in current field). The other independent variables were material look (natural, somewhat natural, not natural looking), sustainability rating (continuous scale of 0-100), and question type (initial taste, aesthetic experience factors, resulting like/dislike).

3.1.1 Questionnaire Design

To gather general participant information, provide the different levels of information to participants, and to collect aesthetic reaction data and follow-up aesthetic reaction reasoning data, a questionnaire packet was given to each participant. The aesthetic reaction data was collected using a six question five point Likert scale measuring aesthetics according to the

theories established in the redefinition of aesthetics. Each question asked participants to what degree they felt the various elements of aesthetic principles from 'very low'(1) to 'very high'(5).

The first question, "To what degree do you find the material aesthetically pleasing?", aimed to establish an initial and most likely more intuitive aesthetic reaction to the material. This measure of aesthetic pleasure related to the traditional definition of aesthetics linked to a more utilitarian idea of beauty and pure pleasure (Croce, 1995). While this stemmed from traditional aesthetics, this also established an aesthetic base to which to compare the reactions given to subsequent questions as participants may or may not have gone through a process of aesthetic experience (Dewey, 2005). The second question, "Should the opportunity arise, how strong would your desire be to use the material?", aimed to establish an additional element of initial reaction based on desirability. However, posing such a question, along with the information, if provided, also aimed to initiate the process towards aesthetic experience. Suggesting that the participant could consider using the material called the material out as something for further contemplation and beyond intuition (Seel, 2005).

The third question, "To what degree does the material elicit an emotional response?", aimed to reach further into the process of full aesthetic experience. According to Dewey (2005), "emotions are qualities, when they are significant, of a complex experience that moves and changes... All emotions are qualifications of a drama and they change as the drama develops… The intimate nature of emotion is manifested in the experience of one watching a play on the stage or reading a novel. It attends the development of a plot" (p. 43). The plot, or aesthetic experience, requires an emotional connection to the object in order to be fully formed. This question worked to gauge emotional reaction to the material, based on its visual and knowledge aspects, as well as to suggest that an emotional connection between the participant and the

material may be possible. The fourth question, “To what degree does the material elicit an intellectual response?”, also worked as part of the process towards aesthetic experience. The importance of an intellectual connection to and evaluation of an object when developing aesthetic experience was made clear from the several discussions of the value of cognitive assessment by Dewey (2005), Croce (1995), and Beardsley (1981). The object needed to provide intellectual stimulus (for this research was done so through the knowledge provided) in order to generate cognitive activity as part of the process towards aesthetic experience. The fifth question, “To what degree do you feel a sensory response to the material?”, also linked to emotional and intellectual responses as part of the whole aesthetic experience. Sensory response represented a synthesis of information gathered through the five senses, most commonly visually. The inclusion of gauging this response is vital to the progression of aesthetic experience as in combination with emotional and intellectual stimulation. In addition to maintaining Dewey’s (2005) concept of unity among an object’s qualities, the measure of sensory response, taken as the fifth reaction rather than the first or second, aimed to allow the participant time to consider emotional and intellectual reactions in order to inform the sensory response (Scruton, 1979). Without this consideration, the sensory reaction would have been only based on the initial and intuitive assessment. The attention to the emotional, intellectual and sensory responses together based on the visual *and* cognitive components elevate the sensory interaction to a part of the unity pointed out by Dewey (2005) as essential to having *an* experience.

The sixth question, “Overall, to what degree do you like the material?”, was another form of the first question assessing aesthetic reaction in general. However, in the process of answering the five previous questions, having interacted with the material for a longer amount of time, and having a moment to mentally assess the information, if provided, the rating of aesthetics may

have changed, developing into something beyond pure pleasure. On the other hand, this question could mean something very different than the first question, where 'like' may be gauged as a consummation of all the factors: emotional, intellectual, and sensory. Also, once the journey of achieving aesthetic experience was completed, the participant may have taken that experience as a mode of object understanding, as emphasized by Scruton (1979). Most importantly, comparing the pleasure reaction to this 'like' reaction helped establish the degree to which the journey of aesthetic experience was fulfilled resulting in object understanding. With this, the aim was to influence appreciation for the various materials, first based on aesthetic experience, but then also towards sustainable decision making based on the developed understanding of the material.

At the end of the questionnaire, three follow up questions were presented in an attempt to gain an understanding of the factors that influenced each individual participant. They were: "1) In responding to the degree of which the materials elicited an emotion response, which of the following was the strongest determining factor to your answer?", "2) In responding to the degree of which the materials elicited an intellectual response, which of the following was the strongest determining factor to your answer?", "3) In responding to the degree of which you felt a sensory response to the material, which of the following was strongest determining factor for your answer?". The possible answers for each dealt with past personal experience, environmental or human morality, presence of information, level of clarity, material interaction, and no overarching standard. There was also an "other" option for participants to provide a customized answer that was not already listed. As discussed in the redefinition of aesthetics, there are many viewer specific qualities that affect the aesthetic experience journey, which may help or hinder that process for the various viewers (Scruton, 1979; Dewey, 2005).

3.2 Materials

3.2.1 Wall Surface Material Selection

Nine interior wall surface materials were used as the elements of design to be assessed. Each of the nine materials was chosen based on a rubric of visual type and sustainability qualities. The rubric crossed visual type (natural looking, semi-natural looking, not natural looking) with generalized sustainable quality (sustainable, somewhat sustainable, not sustainable). Natural looking was categorized as materials having the look and tactile feel of something associated with nature. This included bark, wood veneer, and grass fibers (at a scale where it was noticeable that grass fiber was used). Materials categorized as semi-natural looking included materials which attempted to recreate a natural look from non-natural products or those reminiscent of a natural product, and those that were in fact made of natural materials, but at a scale not obviously noticeable as such. The materials categorized to not look natural included those that had no elements commonly associated with nature. This included materials with a slight pattern that was clearly not from a natural element such as wood. Beyond the visual type, all materials were of neutral color, in the realm of brown, beige, tan, and pale yellow (reference Table 1). These colors were chosen to level the field to focus on the overall appearance rather than being liked because of something such as on a participant's favorite color.

All materials, except one, were chosen from companies commonly used in interior/architectural design practice when specifying such material. For the purposes of having a full range of sustainability levels, the material selected as most unsustainable was not from one of these reputable companies. Based on the progression of the design material industry, it was

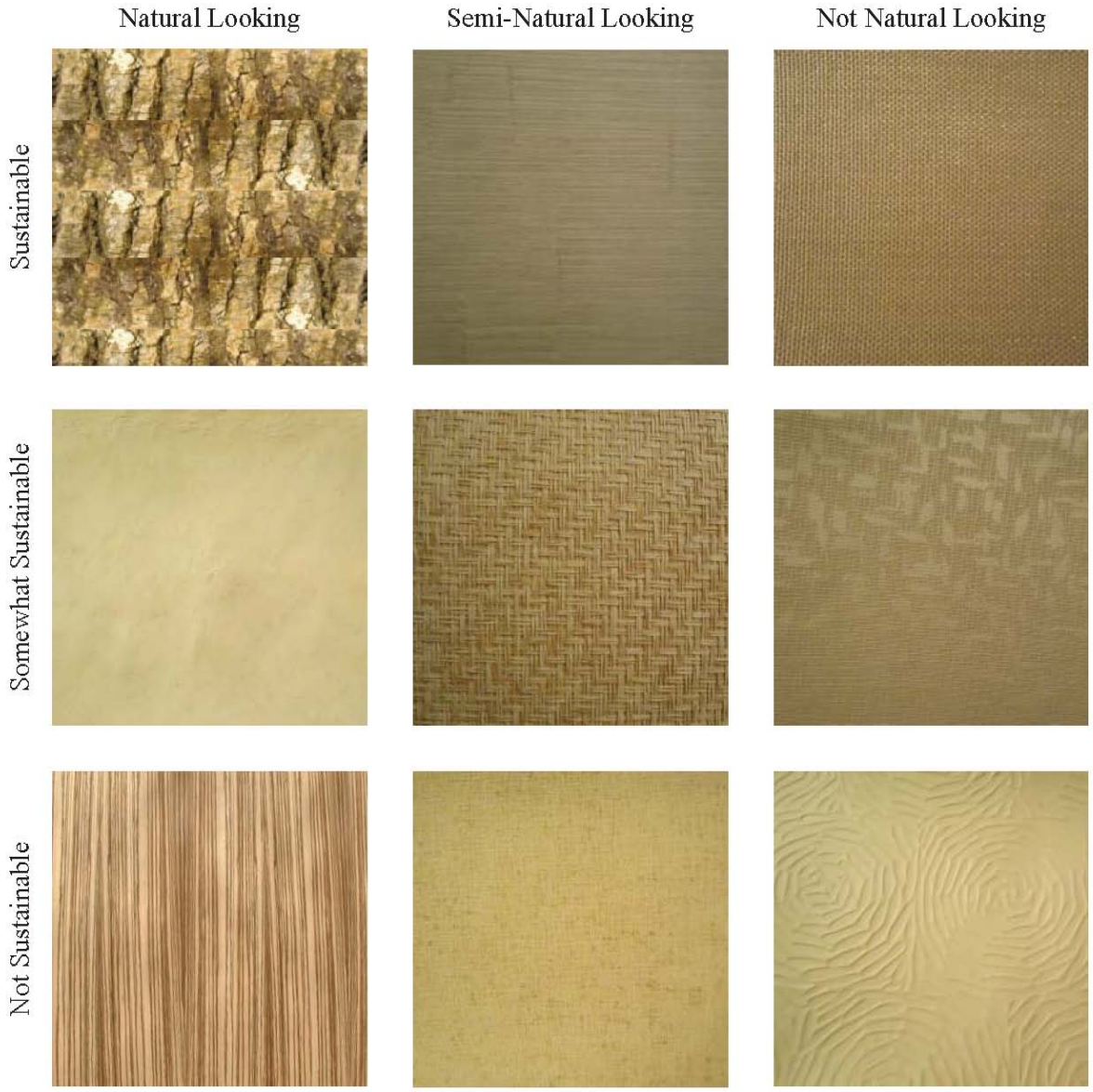


Table 1: Material Selection Rubric

not possible to find a material to fit this description, as defined by the sustainability rating model discussed later, from the most common and reputable companies. While the most reputable companies do produce products with undesirable environmental qualities, they still do not constitute the lowest possible rating. In choosing materials from companies which cater to interior/architectural designers, the act of selection of these materials was similar to how a

designer would do so. Visiting the company website to view material images and information and calling or emailing the company to order a sample of the materials selected online are typical steps that a designer would take. The intent was that the materials would be similar to those designers might choose for their own professional projects.

3.2.2 Wall Surface Material Sustainability Rating

The generalized sustainable qualities (sustainable, somewhat sustainable, not sustainable) were determined by a score derived from a sustainability rating chart created for this study. The points of sustainability listed in the rating chart were synthesized from elements provided as sustainability certification criteria from a few existing material rating systems. LEED, Leadership in Energy and Environmental design, is the sustainable building rating system developed by the U.S. Green Building Council and is the most well known set of sustainability guidelines for the build environment. As part of its building assessment, LEED incorporates a section dedicated to materials and resources, including criteria for the products of any demolition and building materials (USGBC, 2009). While it could be presumed that the LEED guidelines would be the best choice from which to model the rating chart for this study, after an in depth analysis of LEED, it was evident that a more holistic and life cycle assessment driven set of criteria should be developed. Life cycle assessment (LCA), as defined by the EPA, is "a technique to assess the environmental aspects and potential impacts associated with a product, process, or service, by compiling an inventory of relevant energy and material inputs and environmental releases, evaluating the potential environmental impacts associated with identified inputs and releases, and interpreting the results to help you make a more informed decision" (EPA, 2012). To create such guidelines, rating systems specifically created for sustainable material evaluation, "Cradle to Cradle", "SMaRT", and "level" were used. Based on the analysis

of LEED and its shortcomings, and an evaluation of the line items most prevalent in the selected rating systems the new rating system was derived. The rating guidelines list with each item's source identified as from Cradle to Cradle (C), SMaRT (S), and level (L), and item multiplier used to weight that item for the final total.

To complete the rating chart for each of the selected materials, whatever information was made available on the manufacturer's website was used. For the purposes of resulting in a quantified score, a material received credit if evidence was found on the website leading to a 'yes' answer to each of the items if posed as a question. If the information was not present, a 'no' answer was automatically assigned. Specifics of each item accomplished was recorded for later use. Each of the nine materials was scored in order to establish a quantified representation of its sustainability. All line items for which material information was determined to be 'not available' or 'unknown', and for which the information provided was of negative environmental character, received a zero. The line item scores were then weighted and totaled. Each item's score was then divided by the total number of possible applicable to each material, and multiplied by 100. For the materials which contained wood products, the total was 30.0 points, whereas for those materials not containing wood products, the total was 27.5. The scores follow the material selection rubric where the materials categorized as 'sustainable' received scores between 50 and 100. Materials categorized as 'somewhat sustainable' received scores between 30 and 49, and those 'not sustainable' materials scored between 0 and 29.

The resulting scores for each material provided the quantified sustainability identity with which analysis could be made in comparison to the ratings provided by the subjects of their aesthetic assessment of the materials.

		Material Sustainability Rating Guidelines	
Source			Weight
	1.0	Company Sustainability & Social Responsibility	
L, C	*1.1*	Publicly available corporate ethics and fair labor statement(s), adopted across entire company	1
S, C	*1.2*	Acceptable third party social responsibility assessment, accreditation, or certification (i.e., SA8000 or WRAP)	1
	1.3	Corporate sustainability mission and practices	1
S	*1.4*	Meets standards of ISO 14001 or equivalent (Environmental Management System)	1.5
	1.5	Product is certified by third party sustainability certification(s)	1.5
L, C	*1.6*	Solid waste management plan	1
	2.0	Product Manufacturing	
		Material Content	
C	*2.1*	All material ingredients identified (down to the 100 ppm level)	1
	2.2	Low raw material processing or mono-material (vs. high processing)	1
		Material Source	
S, L	*2.3*	Contains recycled/ reclaimed content	1.5
L	*2.4*	Renewable resourced material	1
		Energy Use	
S, C	*2.5*	Characterized energy use and source(s) for product manufacture/assembly	0.5
S, L, C	*2.6*	Uses renewable energy source for product manufacture/assembly	1.5
		Water Use	
L, C	*2.7*	Created or adopted water stewardship principles/guidelines	1
C	*2.8*	Implemented water conservation measures	1.5
C	*2.9*	Implemented innovative measures to improve quality of water discharges	1
		Wood (if applicable)	
C	*2.1*	No wood sourced from endangered forests/ species	1
C	*2.1*	Wood is certified by an accredited forestry management certification	1.5
L	*3.0*	Transportation	
	3.1	Country of raw material origin (USA)	1
	3.2	Country of manufacture origin (USA)	1
	3.3	Product is lightweight (efficiency of transportation energy)	0.5
	4.0	Human & Environmental Health	
S, L	*4.1*	Reduction/elimination of chemicals of concern	1
C	*4.2*	Non-Carcinogenic, non-toxic, non-hazardous	1
S, L	*4.3*	Low emitting	1.5
	5.0	End of Life	
		Durability	
S	*5.1*	Lifespan longer than 5 years	1
		Reutilization	
L	*5.2*	Extended product responsibility (i.e., reclamation policy)	0.5
L, C	*5.3*	Recyclable (technological nutrient)	1.5
L, C	*5.4*	Compostable/biodegradable (biologically nutrient)	1.5
		TOTAL	30.00

Table 2: Sustainability Rating Guidelines List- with each item's source identified as being from Cradle to Cradle (C), SMaRT (S), and level (L), and item multiplier used to weight that item for the final total

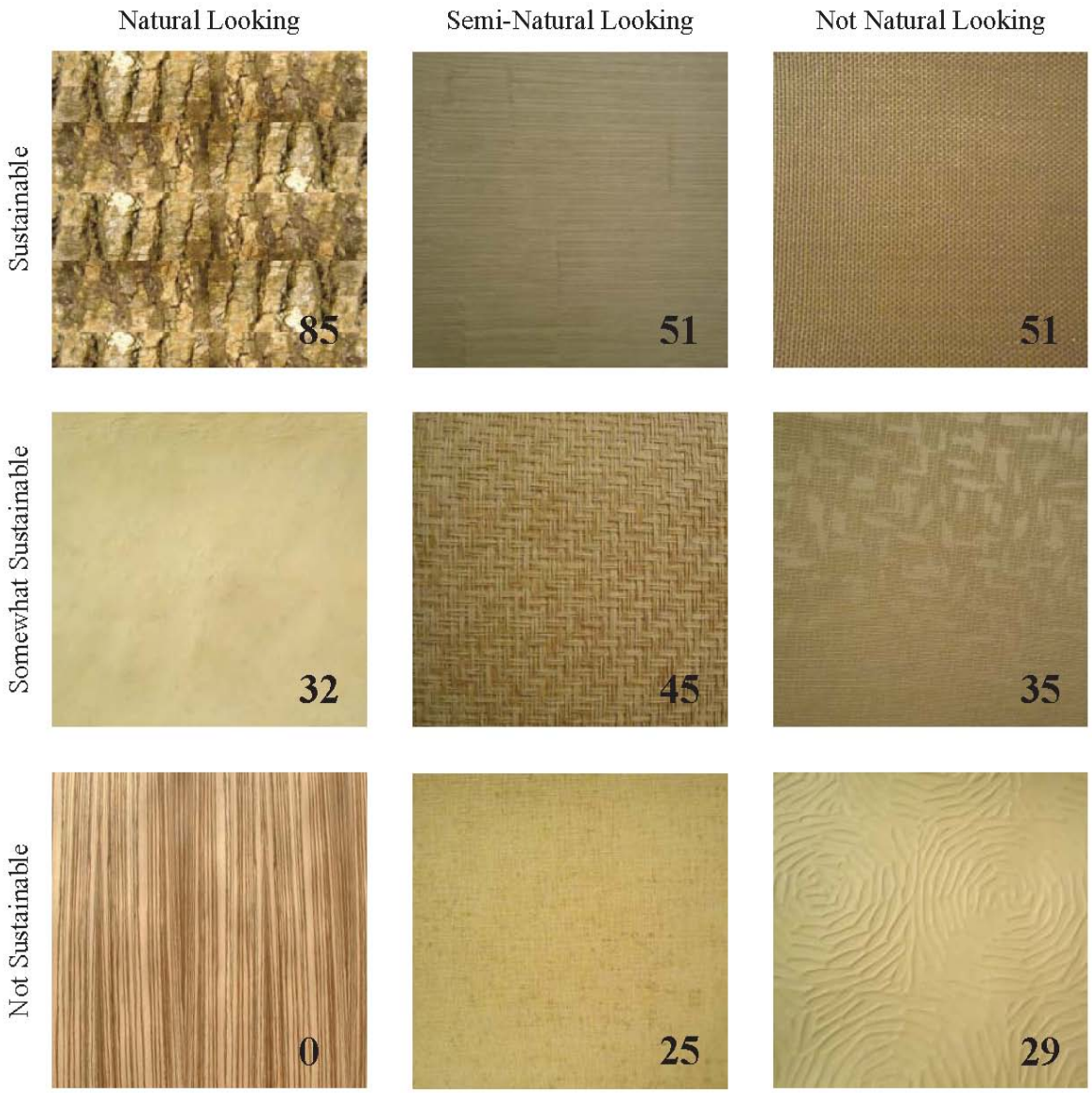


Table 3: Material Selection Rubric with scores from sustainability rating

3.2.3 Material Information

The first variable in the research design was level of information, categorized as information in a paragraph form, information in a fact chart form, and no information, The information used to create the first two levels was the specifics to each line item as established in the material sustainability rating. The information in a fact chart form was a modified version of the rating guidelines, presenting each line item as a concise statement to which the corresponding information was displayed in brief detail. Where details of a product's accomplishment of the various sustainable factors were available, that information was displayed, and where information was not available or discussed on the website, a 'not available' or 'unknown' was displayed. The chart produced listed 21 line items, a condensed version of the 27 item rating guideline. Details requiring specific knowledge of an organization, certification, or term was provided as footnotes. The information in a paragraph form used the same 21 item chart as an outline to provide the information. The details of each item, or the fact that it was not available or unknown, were put into a sentence format. Each paragraph of these sentences was loosely ordered to begin with company attributes, followed by manufacture, transportation, and ended with end of life details. This was done in effort to create a temporal story line of the material's life, a narrative to be followed by the participants. Adjustments were made to combine items into comprehensible sentences, limited repetition of sentence format and unknown elements. Details require specific knowledge of an organization, certification, or term were provided in the sentence discussing that attribute.

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"to produce a product line that is harmonious with nature and minimizes the impact of construction"
Environmental management system	Certified B Corporation*
Third party material certifications(s)	Cradle to Cradle Gold**
Manufacturing waste management system	all waste is biodegradable
Material composition disclosure (parts per million)	yes, 100% poplar tree bark
Material processing level	mono-material (single material)
Recycled/ reclaimed content	100% reclaimed: bi- product of forest industry
Rapidly renewable	no
Manufacturing energy source	human energy, electricity
Renewable energy source	grid electricity offset by renewable energy credits
Water stewardship principles/guidelines	no water is used in manufacturing process
Water conservation system	no water is used in manufacturing process
Water discharge management	no water is used in manufacturing process
Wood source	FSC certified Yellow Poplar forests***
Country of material origin	United States
Country of manufacture	United States
Chemicals of concern	none; is non-carcinogenic, non-toxic, non-hazardous
VOC (volatile organic compound) emission level	zero emissions
Lifespan	up to 80 years
Extended company product responsibility system	no
End of life product disposal method	100% biodegradable, ground as mulch

* "Certified B Corporations are a new type of corporation which uses the power of business to solve social and environmental problems" (www.bcorporation.net)

** "The Cradle to Cradle CertifiedCM program is a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles" (www.mbdc.com)

*** "FSC (Forest Stewardship Council) is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests" (www.fsc.org)

Figure 1: Information in Fact Chart Form example- for *Sustainable x Natural Looking* material (see Appendix I for Fact Charts for all materials)

This company's environmental mission is "to produce a product line that is harmonious with nature and minimizes the impact of construction". To do so, they have become a Certified B Corporation, an organization which promotes "the power of business to solve social and environmental problems", adopting its environmental management system. The product is manufactured in the United States using human and renewable energy credit energy and no water. The product is a mono-material composed of 100% reclaimed yellow poplar bark, a bi-product of the forest industry, from FSC (Forest Stewardship Council) certified forest sources in the United States. The product contains no chemicals of concern and emits zero VOCs (volatile organic compounds), and any manufacturing waste is fully biodegradable. At the end of its up to 80 year life, the product cannot be returned to the company, but is fully biodegradable. Based on these attributes, the product is Cradle to Cradle Gold certified (a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles).

Figure 2: Information in Paragraph Form example- for *Sustainable x Natural Looking* material (see Appendix H for paragraphs for all materials)

3.3 Participants

The implications for this study in regards to the interior and architectural design fields made it necessary to focus on design professionals as research subjects. The results of this study are most relevant to designers specifying interior wall surface materials and other interior design products. As this is common to the scope of work for many designers, research providing evidence to support the hypothesis could be used by designers to help justify selection of sustainable wall surface materials over other less sustainable options. Based on the relevance of this study to designers, half of the research participants were interior and architectural designers or students of these fields. For those participants working as professionals in those fields, it was verified that they have had experience specifying interior materials. These participants were all from an architectural design firm located in Morristown, New Jersey. Of the 40 participants from this location, 19 had eleven or more years of experience in the field, with 29 years being the highest. There were 21 participants with ten or fewer years of experience, with one year being

the lowest number of years in the field. The participants falling in the eleven or more years of experience group are to be called ‘senior professionals’ and those falling in the ten or fewer years of experience group are to be called ‘junior professionals’. The 25 design students were all from the interior design program in the Department of Design and Environmental Analysis at Cornell University. For the purposes of grouping participants into experience levels, all students were in the undergraduate stage of their education, and while school year does not further divide these participants into groups, it can be noted that 12 of the students were in their second year, ten were in their third year, and three were in their fourth year. In total, questionnaire results were analyzed from 65 designers: 19 senior professionals, 21 junior professionals, and 25 students.

The other half of the participants were from non-design fields. These participants were intended as a source of comparison to participants from the design field. Those not trained as designers or architectural designers and who do not have experience specifying interior wall surface materials are hypothesized to have different reaction scores to the materials, basing their overall assessment more on the pleasure, desirability, and visual aspects. While three levels of information are identical for participants in the design and non-design groups, the base understanding and sense of importance for having the information will most likely be different, influencing the cognitive processes towards aesthetic experience and understanding of sustainability character. The criteria for selecting a non-design company was that, based on the job/industry type, the employees had some level of higher education. While this was not specifically verified, both companies would be considered ‘white collar’ rather than ‘blue collar’. The non-design senior and junior professionals were from two offices. The first, a chemical company and lab in Branchburg, New Jersey, generated a total of 17 participants, with 12 senior professionals and five junior professionals. The second company, a financial funding office in

Ithaca, New York, generated a total of 25 participants, with eight senior professionals and 17 junior professionals. The participants from these two locations combined resulted in 20 senior professionals and 22 junior professionals. The 20 non-design students were all from Cornell University, representing 13 different academic majors. For the purposes of grouping participants into experience levels, all students were in the undergraduate stage of their education, and while school year does not further divide these participants into groups, it can be noted that six of the students were in their first year, seven were in their second year, five were in their third year, and two were in their fourth year. In total, questionnaire results were analyzed from 62 non-designers: 20 senior professionals, 22 junior professionals, and 20 students.

In addition to field, participants were also grouped based on experience level. As previously discussed, participants were grouped into 'senior professionals' (eleven or more years of experience), 'junior professionals' (ten or fewer years of experience), and 'students' (undergraduate students). The intention for these subgroups was that the number of years practicing in either the design or non-design fields may influence knowledge of or attention to sustainable issues. One conjecture was that students, regardless of major (design or non-design), may possibly be more sensitive to sustainable factors when rating the materials due to the influx of literature and discussions regarding sustainability available on campus and being infused into their education. Such a scholastic environment was assumed to influence student's ratings of the materials, emphasizing sustainability as a current topic of concern and immediate thought. In comparison to this, it was speculated that non-design professional participants would not have as much exposure to knowledge of sustainability in the work place. However, for the design professional participants, it was not assumed that they would display more or less sensitivity to sustainable characteristics than the students. It was uncertain to what degree the infusion of

sustainability in their profession would influence their ability or desire to decipher the information regarding sustainability provided as an element in addition to aesthetic concerns. While these conjectures are of great interest, the variables to which they relate are largely sorted out as exploratory elements to further analyze the collected data in addition to the primary hypothesis.

All participants were also assigned randomly to one of three information levels, based on the order of attendance to the space used to conduct the research at each location. For the design field participants, of the senior professionals, six received information in paragraph form, six received the information in fact chart form, and seven received no information. Of the junior professionals, eight received information in paragraph form, seven the fact chart, and six no information, and of the students, eight received the paragraph form, eight the fact chart, and nine received no information. The totals for the design participants were 22 with paragraph information, 21 with fact chart information, and 22 with no information. For the non-design field participants, of the senior professionals, seven received information in paragraph form, seven received the information in fact chart form, and six received no information. Of the junior professionals, seven received information in paragraph form, seven the fact chart, and eight no information, and of the students, seven received the paragraph form, seven the fact chart, and six received no information. The totals for the design participants were 21 with paragraph information, 21 with fact chart information, and 20 with no information. In total for all participants, 43 received information in paragraph form, 42 received information in a fact chart form, and 42 received no information.

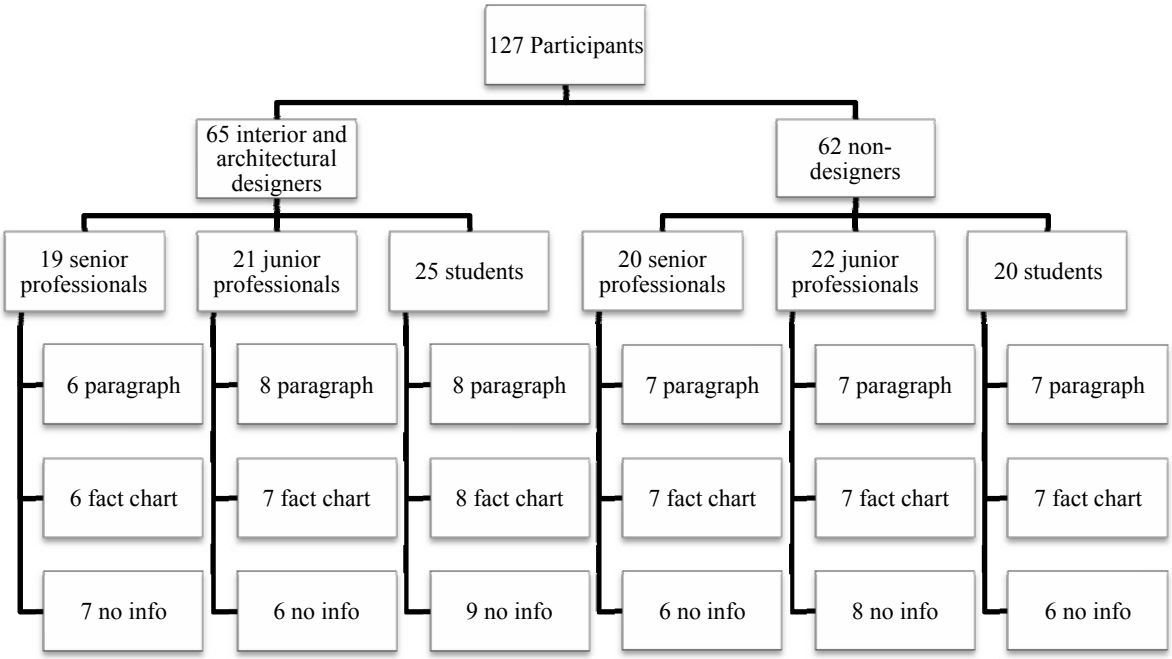


Table 4: Participant group breakdown

3.3.1 Participant Recruitment

Design students were recruited from two interior design courses in the department of Design and Environmental Analysis at Cornell University. The professor of these two classes allowed students to take 30 minutes away from class time to participate in the research. The time commitment and a brief overview of the study were verbally provided at the beginning of each class. It was made clear to the students that it was completely voluntary to participate and that there would be no consequences for not participating, but also that there was no compensation for participating. In both courses, all students participated at the same time but spread out to examine the materials out of number order. In both courses, all students present in class at the time of the study participated.

Non-design students were recruited using SUSAN, an online registry for Cornell University researchers to list their studies for participant recruitment and management, and for

students to sign up for experiments to receive class credit or money compensation (http://susan2.psych.cornell.edu/). This study was listed on SUSAN for open registration approximately two weeks before the first date. A second date was also scheduled for one week after the first, each with 30 minute incremental time slots from 10am until 4:30pm. Included in the study listing was a study title "What Do You Find Beautiful", information regarding time length and location of the study, a brief description, and the note that participation would be compensated only by class credit for those courses providing that option. The study was advertised using the title "What Do You Find Beautiful" in effort to describe the study without using the term 'sustainability', in order to allow the questionnaire packet to be the only tool communicating any elements of sustainability. The brief description of the study was "What do you find beautiful? Get a chance to provide your insight and exercise your senses! Come and participate in the short 30 minute study by interacting with wall surface materials and providing your aesthetic assessment of each". Participation was compensated by one SUSAN point, equivalent to one half hour of research time, reported to each student's professor for conversion to whatever credit they use. The time slots consisted of between zero and four students.

The design professionals were all from an architectural design firm in Morristown, NJ. Approval to conduct the research at this location was gained by contacting the human resources representative via email with a research proposal letter. Once the date of the study was established, a flyer was emailed to the office contact to be distributed via email to all employees. On the day of the study, the email was distributed again with the room location. The flyer stated "What Do You Find Beautiful? Get a chance to provide your insight: TODAY, Tuesday March 20th Take a 30 minute break out of your busy day to complete a brief questionnaire. Stop by Conference Room C anytime between 10:30 and 3:00 to participate. All are welcome to

participate! Questionnaire relies on aesthetic response to various wall surface materials. *After completing the questionnaire, enter a raffle for a chance to win one of three $50 gift cards to Qdoba!" As the flyer states, all participants received a raffle ticket at the completion of the questionnaire, resulting in three winners of a $50 gift card to a favorite local lunch restaurant. Participants came to the conference room at their leisure between 10:30am and 3:00pm, sometimes one at a time, and sometimes with approximately eight people at once.

The non-design professionals were from two locations, Branchburg, NJ and Ithaca, NY. Approval to conduct the research at the Branchburg, NJ location was obtained by contacting an acquaintance via email with a research proposal letter which was passed on to the company president. Once the date of the study was established, a flyer was emailed to the office contact, printed, and pinned-up around four locations in the office. The flyer stated "What Do You Find Beautiful? Get a chance to provide your insight: Friday March 23rd take a 30 minute break out of your busy day to complete a brief questionnaire. All are welcome to participate! Questionnaire relies on aesthetic response to various wall surface materials. *After completing the questionnaire, enter a raffle for a chance to win a $75 gift cards to the Stony Brooke Grille!" On the day of the study, the location was determined and verbally announced to the office. Due to time constraints, anyone interested in participating was asked to sign up for one of two time slots. During the time slots, participants all assessed the materials in the correct number order, beginning approximately 2 minutes apart. As the flyer states, all participants received a raffle ticket at the completion of the questionnaire, resulting in a winner of a $75 gift card to a favorite local lunch restaurant.

Approval to conduct the research at the Ithaca, NY location was obtained by an employee through a mutual friend via email with a research proposal letter. The same flyer was emailed to

this contact with information modified per this location's research date. The flyer stated "What Do You Find Beautiful? Get a chance to provide your insight: Wednesday June 27th take a 30 minute break out of your busy day to complete a brief questionnaire. All are welcome to participate! Questionnaire relies on aesthetic response to various wall surface materials. *After completing the questionnaire, enter a raffle for a chance to win a $75 gift cards to the Starbucks!". As the flyer states, participants received a raffle ticket to Starbucks, as chosen by the contact at this location. A time frame of noon to 4pm was set to enable participants to stop by at their convenience to complete the questionnaire.

3.4 Data Collection

3.4.1 Experiment Setup

The nine materials samples were sized down from their original variable sizes to be 24" wide by 48" tall. To do so, one of the materials was mounted onto a thin piece of particle board for dimensional stability. The questionnaire was printed, double sided, on landscaped oriented letter size paper and stapled in the top left corner. The order of the materials displayed was signified by printed numbers on three inch circles hung above the right top corner each material. At each location, the materials were hung vertically on walls, some by push pins on a tack wall, and some by hidden masking tape on painted walls. At all locations, the materials were displayed on two adjacent walls, spaced approximately 10 inches apart.

3.4.2 Procedure

On the days of research, setup was begun a half hour before the scheduled arrival of participants. The materials were hung in the provided location in sequential order from left to right across the walls. The sequence of materials was different for each general group (design

professionals, non-design professionals, students) in an effort to compensate for any fatigue throughout the study and to minimize the effects of material order on aesthetic assessment.

Design Office		Non-Design Offices		Design & Non-Design Students	
Order #	Material #	Order #	Material #	Order #	Material #
1	4	1	5	1	9
2	2	2	1	2	3
3	7	3	4	3	6
4	8	4	3	4	1
5	1	5	6	5	5
6	5	6	9	6	7
7	9	7	8	7	4
8	3	8	2	8	8
9	6	9	7	9	2

Table 5A: Material Randomized Order

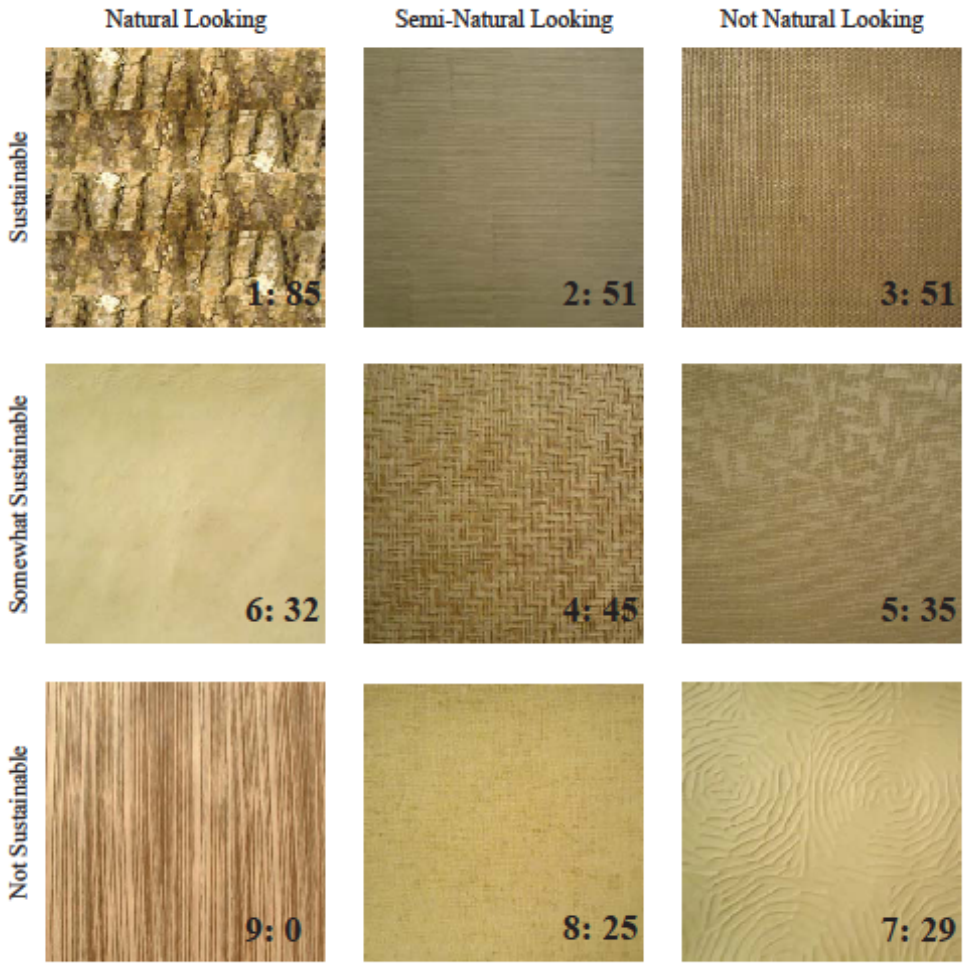


Table 5B: Material Rubric with Order Number and Corresponding Sustainability Rating (X: XX)

To begin the study, participants were given the verbal consent information sheet which they were asked to read over and to provide their consent to participation and understanding of the research through verbal communication. Following this, participants were given a questionnaire packet, distributed in alternating order of information level (no information, information in a fact chart form, information in a paragraph form) based on participant arrival order. The order of participants was not randomized any further than arrival order, and the sequence of information level was not randomized any further than alternating the three levels in effort to ensure equal participation in information level groups. Participants were instructed to complete the general participant questions first, then the material assessments, and to complete the packet by answering the three follow up questions. The printed instructions related to the material assessments were also verbally stated at this time. The section of the instructions which stated "Feel free to interact with the materials in any way you would like" was also further clarified by providing the examples of touch and smell. Once participants completed the questionnaire, the packets were returned to the researcher who thanked them for their time. At the office locations, participants received a raffle ticket at this time, and for the non-design students, it was indication on SUSAN that they did in fact participate. The winning raffle ticket(s) were selected by a representative of the office at the completion of the study at that location, and the winner(s) were notified by that representative.

RESULTS

4.1 Data Analysis Overview

The participant data, material data, and response data were analyzed with SPSS software using the multi-level mixed model method. For the purposes of this analysis, the participant data was labeled and specified under participant ID as design/non-design, experience level (senior professional, junior professional, student), and information level (paragraph form, fact chart form, no information). The material data was specified under material ID as material look (natural, somewhat natural, not natural), and sustainability rating (on a continuous scale of 0-100). An additional variable used to explore the possible development of aesthetic experience was question type associated with each question identification (1-6) where questions 1 and 2 were categorized to gauge primarily initial taste, questions 3, 4, and 5 were aesthetic experience factors, and question 6 was resulting like/dislike. Of the independent variables, the random variables included the 127 participants, the nine materials, and the six questions. The fixed variables included design/non-design, experience level, information level, material look, sustainability rating, and question type. The dependent variable, response, was also a fixed variable. The follow up questions at the end of the questionnaire were analyzed using the chi-square test method and cross tabulation with the participant related independent variables.

4.2 Research Question, Hypothesis, and Findings

As previously stated, the overarching research question and hypothesis, and the basis for this research were:

Research Question: Does latent referenced aesthetic appreciation of architectural materials, as instilled by sustainable characteristics, affect manifest reference responses to those same materials in terms of their desirability?

Hypothesis: Aesthetic value is higher for materials with greater sustainable quality than for those of low sustainable quality when knowledge regarding latent sustainable qualities of the material is provided, and is higher when that knowledge is provided in narrative form versus fact chart and is higher for some information versus no information.

This hypothesis involved the relationship of the response, or aesthetic value rating, with sustainability rating and information level. Based upon the mean comparison of the response data from the three information levels across the materials in sustainability rating order, there was a trend supporting the hypothesis that aesthetic value is higher for materials with higher sustainability ratings, and is higher when information is provided than when not. However, the fact chart form of information generally resulted in greater accuracy of aesthetic reaction across the sustainability ratings, as summarized by the linear trend lines in Figure 1, where there was a more substantial decrease in aesthetic value as sustainability rating went down. The mean aesthetic rating supplied by participants with no information can be used as the control base rating from visual (and other sensory) assessment (see Table 8 for specific data).

		Material ID (Sustainability Rating)								
Information Level		1 (85)	2 (51)	3 (51)	4 (45)	5 (35)	6 (32)	7 (29)	8 (25)	9 (0)
	Paragraph	3.79	2.71	2.77	3.48	3.11	3.34	3.18	2.78	3.19
	Fact Chart	3.97	2.98	3.02	3.55	2.83	3.10	3.31	2.54	3.34
	No Information	3.98	2.52	2.66	3.29	2.86	3.04	3.32	2.59	3.17

Table 6: Aesthetic Response Mean comparison across Information Level & materials sustainability order

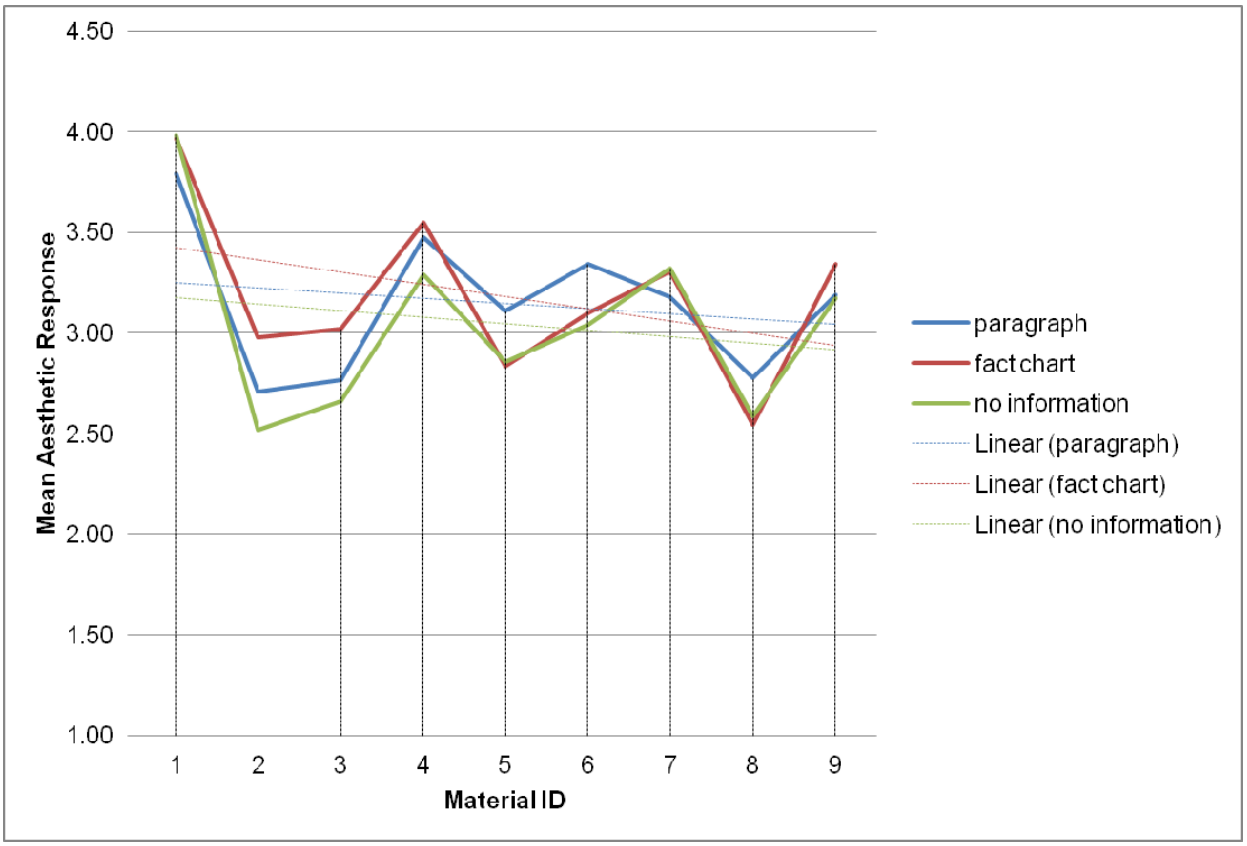


Figure 3: Aesthetic Response Mean comparison across Information Level & material sustainability order

4.3 Interaction Patterns

Having controlled for other variables in addition to those pertinent to the hypothesis, the relationship to participant field (design/non-design), experience level, material look, and question type can also be considered. The results identify significant relationships of response to sustainability rating and information level, but as dependent upon either participant field (design/non-design) and material look, or participant field and experience level. Interaction significance has been determined by analysis using SPSS as outlined in Table 9.

Type III Tests of Fixed Effectsa				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	3.042	52.272	.005
Design_NonDesign	1	556.667	1.292	.256
ExperienceLevel	2	212.467	2.768	.065
InformationLevel	2	556.679	4.610	.010
MaterialLook	2	3.000	.561	.621
QuestionType	2	6684	2.065	.127
SustainabilityRating	1	3.000	.016	.907
Design_NonDesign * InformationLevel * MaterialLook * SustainabilityRating	4	6684	3.900	.004
Design_NonDesign * InformationLevel * SustainabilityRating	2	6684	.681	.506
Design_NonDesign * InformationLevel * MaterialLook	4	6684	6.675	.000
Design_NonDesign * MaterialLook * SustainabilityRating	2	6684	14.096	.000
InformationLevel * MaterialLook * SustainabilityRating	4	6684	7.107	.000
Design_NonDesign * InformationLevel	2	556.679	.393	.676
Design_NonDesign * SustainabilityRating	1	6684	3.641	.056
Design_NonDesign * MaterialLook	2	6684	52.814	.000
InformationLevel * SustainabilityRating	2	6684	11.692	.000
InformationLevel * MaterialLook	4	6684	5.471	.000
MaterialLook * SustainabilityRating	2	3.000	.663	.577

Table 7: Significant Effects

Design_NonDesign * ExperienceLevel * InformationLevel * SustainabilityRating	4	6684	7.943	.000
Design_NonDesign * ExperienceLevel * InformationLevel	4	212.467	1.804	.129
Design_NonDesign * ExperienceLevel * SustainabilityRating	2	6684	.502	.605
ExperienceLevel * InformationLevel * SustainabilityRating	4	6684	5.485	.000
Design_NonDesign * ExperienceLevel	2	212.467	.405	.668
ExperienceLevel * InformationLevel	4	212.467	2.003	.095
ExperienceLevel * SustainabilityRating	2	6684	8.012	.000

Table 7(continued): Significant Effects

4.3.1 *Sustainability Rating x Information Level x Design/Non-Design x Material Look*

Analysis showed that the four-way interaction of sustainability rating, information level, design/non-design fields, and material look was significant ($p = 0.004$). When the interaction was compared under the levels within participant field (design vs. non-design) at one standard deviation below the mean sustainability rating (-1 SD = 17), designers rated natural looking materials higher than non-designers across all information levels. (At one standard deviation above the mean sustainability rating (+1 SD = 61), designers also rated all natural looking materials higher than non-designers, see Appendix M.) Specifically, for paragraph information designers (mean = 3.487; standard error = 0.273) rated natural materials significantly higher ($p = 0.004$) than non-designers (mean = 3.052; standard error = 0.274). For fact chart information, designers (mean = 3.642; standard error = 0.274) rated significantly higher ($p = 0.000$) than non-

designers (mean = 2.913; standard error = 0.274), and for no information designers (mean = 3.641; standard error = 0.273) rated significantly higher (p = 0.000) than non-designers (mean = 2.671; standard error = 0.27).

Estimates[a]

Design_NonDesign			Mean	Std. Error	df	95% Confidence Interval	
						Lower Bound	Upper Bound
Designer	Paragraph	Natural	3.487[b]	.273	4.025	2.731	4.243
		Somewhat Natural	2.540[b]	.516	3.493	1.023	4.057
		Not Natural	3.334[b]	.554	3.468	1.699	4.969
	Fact Chart	Natural	3.642[b]	.274	4.076	2.887	4.397
		Somewhat Natural	2.610[b]	.516	3.519	1.095	4.125
		Not Natural	2.699[b]	.555	3.493	1.066	4.331
	None	Natural	3.641[b]	.273	4.034	2.885	4.397
		Somewhat Natural	2.493[b]	.516	3.495	.977	4.010
		Not Natural	3.064[b]	.554	3.470	1.429	4.699
Non-Designer	Paragraph	Natural	3.052[b]	.274	4.063	2.297	3.807
		Somewhat Natural	3.108[b]	.516	3.516	1.593	4.623
		Not Natural	3.495[b]	.555	3.491	1.862	5.128
	Fact Chart	Natural	2.913[b]	.274	4.063	2.158	3.669
		Somewhat Natural	2.255[b]	.516	3.516	.740	3.770
		Not Natural	3.715[b]	.555	3.491	2.082	5.348
	None	Natural	2.671[b]	.275	4.143	1.918	3.425
		Somewhat Natural	2.811[b]	.518	3.551	1.299	4.323
		Not Natural	3.994[b]	.556	3.524	2.365	5.624

a. Dependent Variable: Response.

b. Covariates appearing in the model are evaluated at the following values: SustainabilityRating = 17.

Table 8: Design/Non-Design Mean Estimates of *Sustainability Rating x Information Level x Design/Non-Design x Material Look* Interaction at Sustainability Rating = 17

Pairwise Comparisons[a]									
InformationLevel				Mean Difference (I-J)	Std. Error	df	Sig.[c]	Interval for Difference[c] Lower Bound	Upper Bound
Paragraph	Natural	Designer	Non-Designer	.435*	.149	209.708	.004	.142	.728
		Non-Designer	Designer	-.435*	.149	209.708	.004	-.728	-.142
	Somewhat Natural	Designer	Non-Designer	-.567*	.212	828.949	.008	-.984	-.151
		Non-Designer	Designer	.567*	.212	828.949	.008	.151	.984
	Not Natural	Designer	Non-Designer	-.161	.223	1000.623	.471	-.599	.277
		Non-Designer	Designer	.161	.223	1000.623	.471	-.277	.599
Fact Chart	Natural	Designer	Non-Designer	.728*	.150	209.874	.000	.432	1.024
		Non-Designer	Designer	-.728*	.150	209.874	.000	-1.024	-.432
	Somewhat Natural	Designer	Non-Designer	.355	.214	830.867	.098	-.066	.776
		Non-Designer	Designer	-.355	.214	830.867	.098	-.776	.066
	Not Natural	Designer	Non-Designer	-1.016*	.226	1003.029	.000	-1.460	-.573
		Non-Designer	Designer	1.016*	.226	1003.029	.000	.573	1.460
None	Natural	Designer	Non-Designer	.970*	.151	208.619	.000	.672	1.268
		Non-Designer	Designer	-.970*	.151	208.619	.000	-1.268	-.672
	Somewhat Natural	Designer	Non-Designer	-.317	.215	816.315	.141	-.740	.105
		Non-Designer	Designer	.317	.215	816.315	.141	-.105	.740
	Not Natural	Designer	Non-Designer	-.930*	.227	984.767	.000	-1.376	-.485
		Non-Designer	Designer	.930*	.227	984.767	.000	.485	1.376

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: Response.

c. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table 9: Design/Non-design Pairwise Comparison of *Sustainability Rating x Information Level x Design/Non-Design x Material Look* Interaction at Sustainability Rating = 17

Similarly, designers also rated the not natural looking materials lower than non-designers across all information levels. Specifically, for paragraph information designers (mean = 3.334; standard error = 0.0.554) rated lower than non-designers (mean = 3.495; standard error = 0.555),

for fact chart information designers (mean = 2.699; standard error = 0.555) rated significantly lower (p = 0.000) than non-designers (mean = 3.715; standard error = 0.555), and for no information designers (mean = 3.064; standard error = 0.554) rated significantly lower (p= 0.000) lower than non-designers (mean = 3.994; standard error = 0.556). This indicates that aesthetic reaction response is relative to the sustainability characteristics of materials (sustainability rating) as communicated by the presence of information, or not, but depends on material look as it influences designers and non designers differently. When the same interaction data was compared with sustainability rating at one standard deviation above the mean (+1 SD = 61), the means mostly increased, as hypothesized, for the two levels receiving information: *Designer x Paragraph x Natural Looking and Somewhat Natural Looking; Designer x Fact Chart x Natural Looking, Somewhat Natural Looking, and Not Natural Looking; Non-designer x Paragraph x Natural Looking; Non-designer x Fact Chart x Natural Looking and Somewhat Natural Looking*.

These findings indicate that while the hypothesis that information level effects the aesthetic rating based on the information level provided and the sustainability characteristics discussed in the information is correct, the degree to which participants relate the sustainability characteristics as provided through paragraph and fact chart information influences aesthetic rating differs from designers to non designers and depends upon material look. Designers provided with information regarding the sustainability rating of the materials were significantly swayed to overlook the low sustainability factors in favor of natural looking materials. This suggests that designers, while aware of the meaning of sustainability issues, have a more difficult time setting aside initial aesthetic responses, valuing favorable visual factors more so than non-designers. Being trained and working in fields that do not rely on visual factors of the built

environment, the non-designers were able to assess the sustainability information more independently from visual appeal.

4.3.2 *Sustainability Rating x Information Level x Design/Non-Design x Experience Level*

Analysis showed that the four-way interaction of sustainability rating, information level, design/non-design fields, and experience level was also significant ($p = 0.000$). When the interaction was compared under the information levels (paragraph, fact chart, no information) at one standard deviation above the mean sustainability rating (+1 SD = 61), designers at all experience levels with information provided a higher mean aesthetic rating than designers at all experience levels with no information. On the other hand, not all non-designers followed this trend. While non-designers at the junior professional and student levels with information provided a higher mean aesthetic rating than their non-design counterparts with no information, non-design senior professionals with information provided a lower mean rating than senior professionals without information. Specifically, design senior professionals gave a higher rating with paragraph (mean = 3.319; standard error = 0.316) and fact chart (mean = 3.312; standard error = 0.317) than with no information (mean = 3.200; standard error = 0.309). Design junior professionals also gave a higher rating with paragraph (mean = 3.120; standard error = 0.304) and fact chart (mean = 3.564; standard error = 0.309) information than with no information (mean = 3.099; standard error = 0.316), and design students as well gave a higher rating with paragraph (mean = 3.106; standard error = 0.304)) and fact chart (mean = 3.238; standard error = 0.304) information than with no information (mean = 2.871; standard error = 0.299).

Similarly, non-design junior professionals followed this trend with a higher rating at paragraph information (mean = 3.032; standard error = 0.309) and significantly higher ($p = 0.012$) at fact chart (mean = 3.228; standard error = 0.309) than with no information (mean =

2.628; standard error = 0.304). Non-design students also gave a significantly higher (p = 0.028) rating with paragraph information (mean = 3.120; standard error = 0.309) than no information (mean = 2.561; standard error = 0.317), and a significantly higher (p = 0.001) rating with fact chart information (mean = 3.436; standard error = 0.309) than no information.

Estimates[a]

Design_NonDesign			Mean	Std. Error	df	Interval Lower Bound	Interval Upper Bound
Designer	Paragraph	Senior Professional	3.319[b]	.316	6.689	2.564	4.074
		Junior Professional	3.120[b]	.304	5.684	2.367	3.873
		Student	3.106[b]	.304	5.684	2.353	3.859
	Fact Chart	Senior Professional	3.312[b]	.317	6.703	2.556	4.067
		Junior Professional	3.564[b]	.309	6.119	2.811	4.317
		Student	3.238[b]	.304	5.697	2.485	3.991
	None	Senior Professional	3.200[b]	.309	6.105	2.446	3.953
		Junior Professional	3.099[b]	.316	6.689	2.343	3.854
		Student	2.871[b]	.299	5.366	2.117	3.624
Non-Designer	Paragraph	Senior Professional	2.892[b]	.309	6.119	2.138	3.645
		Junior Professional	3.032[b]	.309	6.119	2.279	3.786
		Student	3.120[b]	.309	6.119	2.367	3.874
	Fact Chart	Senior Professional	3.308[b]	.309	6.119	2.555	4.061
		Junior Professional	3.228[b]	.309	6.119	2.475	3.982
		Student	3.436[b]	.309	6.119	2.683	4.190
	None	Senior Professional	3.521[b]	.317	6.718	2.766	4.276
		Junior Professional	2.628[b]	.304	5.711	1.875	3.381
		Student	2.561[b]	.317	6.718	1.806	3.317

a. Dependent Variable: Response.

b. Covariates appearing in the model are evaluated at the following values: SustainabilityRating = 61.

Table 10: Information Level Mean Estimates of *Sustainability Rating x Information Level x Design/Non-Design x Experience Level* Interaction at Sustainability Rating = 61

Pairwise Comparisons[a]

Design_NonDesign				Mean Difference (I-J)	Std. Error	df	Sig.[c]	Interval for Difference[c] Lower Bound	Interval for Difference[c] Upper Bound
Designer	Senior Professional	Paragraph	Fact Chart	.008	.261	157.984	.977	-.507	.522
			None	.120	.252	159.072	.635	-.377	.616
		Fact Chart	Paragraph	-.008	.261	157.984	.977	-.522	.507
			None	.112	.252	159.599	.657	-.385	.609
		None	Paragraph	-.120	.252	159.072	.635	-.616	.377
			Fact Chart	-.112	.252	159.599	.657	-.609	.385
	Junior Professional	Paragraph	Fact Chart	-.444	.235	163.142	.061	-.909	.021
			None	.021	.245	160.428	.930	-.462	.505
		Fact Chart	Paragraph	.444	.235	163.142	.061	-.021	.909
			None	.465	.252	159.599	.066	-.032	.963
		None	Paragraph	-.021	.245	160.428	.930	-.505	.462
			Fact Chart	-.465	.252	159.599	.066	-.963	.032
	Student	Paragraph	Fact Chart	-.131	.228	165.038	.566	-.582	.319
			None	.236	.222	166.014	.290	-.203	.674
		Fact Chart	Paragraph	.131	.228	165.038	.566	-.319	.582
			None	.367	.222	166.719	.101	-.072	.806
		None	Paragraph	-.236	.222	166.014	.290	-.674	.203
			Fact Chart	-.367	.222	166.719	.101	-.806	.072
Non-Designer	Senior Professional	Paragraph	Fact Chart	-.417	.243	162.067	.088	-.896	.063
			None	-.629*	.252	160.707	.014	-1.127	-.131
		Fact Chart	Paragraph	.417	.243	162.067	.088	-.063	.896
			None	-.213	.252	160.707	.400	-.711	.285
		None	Paragraph	.629*	.252	160.707	.014	.131	1.127
			Fact Chart	.213	.252	160.707	.400	-.285	.711
	Junior Professional	Paragraph	Fact Chart	-.196	.243	162.067	.421	-.676	.283
			None	.405	.236	164.437	.088	-.061	.870
		Fact Chart	Paragraph	.196	.243	162.067	.421	-.283	.676
			None	.601*	.236	164.437	.012	.135	1.067
		None	Paragraph	-.405	.236	164.437	.088	-.870	.061
			Fact Chart	-.601*	.236	164.437	.012	-1.067	-.135
	Student	Paragraph	Fact Chart	-.316	.243	162.067	.195	-.795	.163
			None	.559*	.252	160.707	.028	.061	1.057
		Fact Chart	Paragraph	.316	.243	162.067	.195	-.163	.795
			None	.875*	.252	160.707	.001	.377	1.373
		None	Paragraph	-.559*	.252	160.707	.028	-1.057	-.061
			Fact Chart	-.875*	.252	160.707	.001	-1.373	-.377

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: Response.

c. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table 11: Information Level Pairwise Comparison of *Sustainability Rating x Information Level x Design/Non-Design x Experience Level* Interaction at Sustainability Rating = 61

Non-design senior professionals provided the opposite data, giving a significantly lower ($p = 0.014$) rating with paragraph information (mean = 2.892; standard error = 0.309) than no information (mean = 3.521; standard error = 0.317), and a lower rating with fact chart information (mean = 3.308; standard error = 0.309) than no information.

With the sustainability rating for this analysis at one standard deviation above the mean, this interaction supports the overarching hypothesis, as the presence of information positively affects the aesthetic rating at the high sustainability rating. However, the significance of this relationship depends upon participant field (design/non-design) and the experience levels within each field. That the results of the non-design senior professionals do not follow the overarching hypothesis, differences in this group as compared to its non-design and design counterparts suggests a difference in sustainability knowledge and/or concern level. The design field participants, regardless of experience level, followed the trend which suggests that the knowledge of and concern for sustainability remains constant across experience levels as supplied by the day to day working with the built environment. On the other hand, non-designers who do not work with the built environment may have less exposure to such sustainability issues, especially at the senior professional levels, or if the knowledge is present, it is not of great concern. One possibility is that sustainability, as a more current topic of interest and concern may have been taught to the non-design junior professionals before they entered the work force, and to the non-design students, leaving them with a greater sensitivity to sustainable issues than non-design senior professionals.

4.4 Follow-Up Questions

The three follow-up questions presented to participants at the end of the questionnaire aimed to provide insight into what influenced the responses to the three aesthetic experience factor questions the most. The first follow-up question asked what the strongest determining factor was in answering the emotional response question. Of the participants who answered this question (three did not), most (41.9%) answered that they responded based on past personal experience with a similar material or object, while 25% answered that their responses were based on a sense of environmental morality (see Table 14).

		Frequency	Percent	Valid Percent
Valid	1: A) past personal experience with a similar material or object	52	40.9	41.9
	2: B) a sense of environmental morality	31	24.4	25.0
	3: C) a sense of human morality	9	7.1	7.3
	4: D) other	20	15.7	16.1
	5: E) no overarching standard for dertermining answers	12	9.4	9.7
	Total	124	97.6	100.0
Missing	System	3	2.4	
Total		127	100.0	

Table 12: Response Frequency to Follow-Up Question 1: Emotional Response

The second follow-up question asked which factor was strongest in determining the answers for the intellectual response questions. Of the participants who answered this question (three did not), most (25%) answered that there was no overarching standard for determining answers (see Table 15). While only 15.3% responded that the presence of information determined their answers, in combination with the 21% who identified information clarity level as a factor, a total of 36.3%, and most, of the participants related information factors to determining intellectual response. Based on a chi-square test of the cross-tabulation of participant information level and the answers to the intellectual response follow-up question, the null hypothesis can be rejected,

and it was determined that information level did influence intellectual responses (p = 0.000). Of participants who received information in a paragraph form, 23.8% noted that the presence of information determined their response, and 38.1% that level of information clarity determined their response, with a total of 61.9% relating information to intellectual response. (see Appendix N for complete cross-tabulation results).

		Frequency	Percent	Valid Percent
Valid	1: A) if information was present	19	15.0	15.3
	2: B) level of clarity of information provided	26	20.5	21.0
	3: C) past personal experience with a similar material or object	29	22.8	23.4
	4: D) other	19	15.0	15.3
	5: E) no overarching standard for determining answers	31	24.4	25.0
	Total	124	97.6	100.0
Missing	System	3	2.4	
Total		127	100.0	

Table 13: Response Frequency to Follow-Up Question 2: Intellectual Response

The third follow-up question asked which factor was the strongest in determining sensory response answers. Of the participants who did provide an answer to this question (two did not) the majority (84%) relied on material interaction to answer the sensory response questions. Only 2.4% of participants relied on information for the sensory response (see Table 16).

		Frequency	Percent	Valid Percent
Valid	1: A) interaction with the material sample	105	82.7	84.0
	2: B) past personal experience with a similar material or object	8	6.3	6.4
	3: C) level of clarity of information provided	3	2.4	2.4
	4: D) other	5	3.9	4.0
	5: E) no overarching standard for determining answers	4	3.1	3.2
	Total	125	98.4	100.0
Missing	System	2	1.6	
Total		127	100.0	

Table 14: Response Frequency to Follow-Up Question 3: Sensory Response

4.5 Variable Levels: Mean Comparisons

To further explore the data, the mean results were compared in cross-tabulation with the other independent variables. As seen in Table 17, in a comparison of the mean responses for each material, designers and non-designers differed the most in aesthetic value for materials 1 (Δ 0.390), 5 (Δ 0.606), and 9 (Δ 1.084). The primary features of these materials were that 1 was a natural looking material with the highest sustainability rating (85) and material 9 was natural looking with the lowest sustainability rating (0). Material 5 was not natural looking with a sustainability rating of 35.

		Designer Mean	Non-Designer Mean	Difference of Means
Material	1	4.11	3.72	0.390
	2	2.61	2.87	-0.255
	3	2.81	2.82	-0.004
	4	3.40	3.48	-0.073
	5	2.64	3.24	-0.606
	6	3.27	3.05	0.226
	7	3.13	3.42	-0.291
	8	2.54	2.73	-0.190
	9	3.76	2.68	1.084
	Total	3.14	3.11	

Table 15: Aesthetic Response Means – Designers vs. Non-Designers

The response data has also been compared across the levels of the other independent variables, including a comparison of experience levels (Table 18), information levels (Table 19), material looks (Table 20), and question types (Table 21).

		Senior Professional Mean	Junior Professional Mean	Student Mean
Material	1	4.12	3.90	3.75
	2	2.62	2.79	2.78
	3	2.98	2.93	2.56
	4	3.45	3.11	3.74
	5	2.86	2.86	3.07
	6	3.46	3.19	2.88
	7	3.54	2.97	3.32
	8	2.66	2.76	2.49
	9	3.18	3.05	3.45
	Total	3.21	3.06	3.12

Table 16: Aesthetic Response Means – Experience Level Comparison

		Paragraph Mean	Fact Chart Mean	No Information Mean
Material	1	3.79	3.97	3.98
	2	2.71	2.98	2.52
	3	2.77	3.02	2.66
	4	3.48	3.55	3.29
	5	3.11	2.83	2.86
	6	3.34	3.10	3.04
	7	3.18	3.31	3.32
	8	2.78	2.54	2.59
	9	3.19	3.34	3.17
	Total	3.15	3.18	3.05

Table 17: Aesthetic Response Means – Information Level Comparison

	Natural Looking	Somewhat Natural Looking	Not Natural Looking
High Sustainability Range (1; 2; 3)	3.91	2.73	2.81
Medium Sustainability Range (6; 4; 5)	3.16	3.44	2.93
Low Sustainability Range (9; 8; 7)	3.23	2.64	3.27
Total	3.44	2.94	3.01

Table 18: Aesthetic Response Means – Material Look Comparison

		Initial Taste	Aesthetic Experience Factors	Resulting Like/Dislike
Material	1	3.71	4.10	3.77
	2	2.79	2.69	2.75
	3	2.93	2.73	2.84
	4	3.46	3.41	3.46
	5	3.04	2.84	3.02
	6	3.03	3.27	3.10
	7	3.12	3.41	3.14
	8	2.70	2.61	2.58
	9	3.19	3.30	3.12
	Total	3.11	3.15	3.09

Table 19: Aesthetic Response Means – Question Type Comparison

DISCUSSION

5.1 Summary of Findings & Possible Explanations

The analysis of the collected data answers the identified research questions in support of the hypothesis, providing evidence that aesthetic value is higher for materials with greater sustainability quality than for those of low sustainable quality when knowledge regarding latent sustainable qualities of the material is provided. However, the data trend supporting the hypothesis of sustainability rating in interaction with information level affecting aesthetic value was not found to be statistically significant. While it appears that the theory of cognitive aesthetics can be appropriately applied to sustainable design materials, more research should be conducted to pinpoint the prime conditions required to maximize the desired results. In addition to this overarching hypothesis, the findings suggest the opposite of what was present in the extended hypothesis, to support that the fact chart form of presenting information regarding sustainability qualities was more successful in generating accurate sustainability level – aesthetic value/desirability scores than the narrative paragraph form.

Using SPSS to test the strength of the findings, the data supporting the hypothesis was found to be significant only in interaction with other variables in addition to information level and sustainability rating. First, in an *Information Level x Sustainability Rating x Participant Field x Material Look* interaction when comparing designers to non-designers, it was determined that designers placed greater emphasis on the look of the material, specifically on natural looking materials, which outweighed negative sustainability factors in their aesthetic value responses. Also, distaste for not natural looking materials superseded the positive sustainability factors. This visual connotation of the materials (natural vs. not natural looking) did not influence non-

designers in the same way. Designers always rated natural looking materials higher than the non-designers did, and always rated not-natural looking materials lower.

These results suggest that based on the work that interior and architectural designers perform, the initial visual assessment of materials and objects is of more importance and hold a higher value than the provision of latent information. While designers still followed the overall trend of rating materials with a higher sustainability rating higher than those that had a lower sustainability rating, visual cues influenced the degree to which this was true.

Second, in an *Information Level x Sustainability Rating x Participant Field x Experience Level* interaction when comparing information levels, it was determined that experience level did not significantly affect the aesthetic value responses of designers, but for non-designers it did. Specifically, non-design senior professionals rated materials of a low sustainability rating significantly higher when information was present than when no information was provided, while non-design junior professionals and students rated materials of a low sustainability rating significantly lower when information was present than when no information was provided.

This suggests that in the interior and architectural fields, a general level of knowledge of and concern for sustainability is provided by the profession. However, in a non-design field office not working in a realm of daily environmental concern, knowledge of sustainability and emphasis on its importance may only be the result of distant educational or personal experiences. Under this assumption, students who are currently exposed to such topics, or junior professionals, who most likely were in an academic setting where sustainability was discussed as an issue more recently than senior professionals, are more aware of sustainability. Here, familiarity with sustainability is shown to decrease with increased years of experience. This is compounded by the fact that much of the information about the severity of environmental

degradation has been discovered only in the last few years. There could be, however, several other explanations for the difference between the non-design senior professionals and the other participants. Possibilities requiring further investigation include income level and changes associate with this such as political standing, and intentional disregard for sustainability.

5.2 Evaluation of Variables

The six independent variables defined for this research study aimed to account for and analyze the differences between professional fields, experience levels and other factors that may affect aesthetic predispositions and cognitive aesthetic experience outcome. Based on the statistical analysis, these variables proved vital to the understanding of the evidence supporting the hypothesis, which only specifically pointed out information level and sustainability rating.

The participant field was more specific in selection criteria for the designers than non-designers. The relevance and implications of this study and its results are highest for interior and architectural designers, as they are those who primarily select the wall surface and other interior materials which this study specifies. The interior and architectural design field is rather specific, and may only be further grouped by type of design services, such as retail, corporate, residential, etc. The company used in this study is a very large and well know architectural design firm which specializes in all areas of the built environment except residential. Based on this, the results from this group appropriately represent a prediction for all interior and architectural designers working in a corporate setting. On the other hand, the participants representing the non-design group were selected based on only the criteria that they work in fields not related to design and the general knowledge of the company indicates a higher education level was

required for their employment. More specific selection criteria for the non-design group may be necessary in order to be able to extend the results to the rest of the non-design population.

Experience level was utilized as an exploratory measure and not the main focus of this research. While there may be other research on the relationship between age or experience and one's affinity for sustainability and environmental concern, this study did not further explore the specifics of this. It was a general assumption that less experienced participants, as correlated with time away from an academic setting, would have more prior knowledge of environmental sustainability issues and their importance. Based on this assumption, experience level groups were defined as senior professional, with 11 and more years of experience, junior professional, with ten and fewer years of experience, and undergraduate university student. In this study, all undergraduate students attended the same university and represented all levels from freshpersons to seniors, but information regarding the standard of sustainability addressed in their curriculum was not accounted for. For the junior and senior professionals, it may be difficult to verify reproducibility in additional studies as while number of years of experience can be easily recorded, this may not accurately indicate number of years since academic experience. Additional selection criteria or general participant questions may be required to control for this variable.

The other independent variables, information level, material look, sustainability rating, and question type, are all measures which were objectified for this research from rather subjective concepts. This study attempted to control for these concepts by conforming them to easily reproducible measures created specifically for each variable. Sustainability rating, which informed the knowledge provided in the paragraph and fact chart information levels, was quantified using a modified sustainability rubric as developed by three reputable certification

methods. Material look, which was categorized as natural, somewhat or semi- natural, and not natural looking, attempted to control from the visual cues that would be invariably associated with the difference materials. Despite this system, the materials were listed under the three categories based on the interpretation of the researcher. With this method, there was room left for error, which could be lessened by sorting materials based on the interpretation of many pre-test subjects from both the design and non-design fields.

Determining and sorting questionnaire items by question type employed a less objective method. However, based on the theoretical nature of this study, the need for several iterations of the study with different questions, question order and question type identification was already anticipated. This study looks at one combination of possibilities for getting at the inner workings of tracing and producing a cognitive aesthetic experience.

5.3 Implications and Application

The value of these research findings may at first seem to be most valuable to designers and material manufacturers. However, the link from manufacturer to designer to user can run in both directions, and their relationship can affect the users of a space in different ways. To begin, the innate sustainability qualities of a material are determined by the participants and processes in the manufacturing of that material. Whether it stems from the decisions of those in charge of the products manufactured or from the demand of the designers specifying those materials, a choice to produce a product somewhere on the sustainability scale is made. Then, the specifying designers make decisions to use various materials for several different reasons. If the decision to emphasize sustainability is made by a manufacturer, the likelihood that the novice sustainability designer ends up selecting a sustainable product is higher. In turn, the users of the space

displaying that sustainable material will reap the benefits of that selection. On the other hand, users of the built environment may demand sustainably constructed spaces, or clients of designers may include an emphasis on sustainable choice in the project scope. Either way, the demand for the sustainable materials falls on the specifying designers and is passed along to the manufacturer.

As this research study identifies in the problem statement: Sustainable building users are often unaware that building materials are indeed sustainable, resulting in a lack of appreciation and loss of a potential value-fit of sustainable features, and a minimization of the demand for designers to specify such materials. While designers play a major and integral role in the selection and use of sustainable products, appreciation for the value of those decisions is overlooked or unknown to users. In a method towards solving this problem and to restore the potential value-fit of sustainable features, this study proves that, by displaying pertinent information regarding the material's sustainability, users become an active part of the valuing and appreciation of sustainable choices. In essence, this technique jump starts the demand for sustainable products, as appreciated by a higher cognitive aesthetic experience. In doing so, the link from manufacturer to designer to user no longer runs back and forth, but develops in a cyclical relationship as the user demand for sustainable material increases. The hopeful intent of such a cyclical relationship between the three players in sustainable material selection is that with each lap, the standard of sustainability will elevate. This technique has been employed effectively at the Solaire Apartments of Battery Park City in New York City which labeled every material in its lobby to explain why it is a sustainable choice.

Another important consideration is that even if the users of the built environment or design clients pose the demand for sustainable materials, designers still make the ultimate

selection or provide options to the client for the final selection. In that role, designers must balance the visual design for the space with sustainability and several other factors. Based on the findings, visually appealing options for sustainable choice must be available, allowing the designer to comfortably choose a material that meets both requirements of environmental stewardship and visual appeal. Presently, designers will still choose visually appeal over sustainable qualities. Options, provided by the manufacturers, which appease both of these concerns will ensure a successful selection by the designer, meeting the demands of the users and clients.

5.4 Study Limitations & Direction for Future Research

The limitations of this study are primarily related to the scale of research and subject participation. The nine material samples used as examples of materials with high, medium, and low sustainability ratings represent only a small look at interior wall surface materials. Also, to further account for personal preferences, color and color influences, and material look, a larger sampling of materials would be beneficial to the strength and generalizabilty of the study. Conversely, a different approach would be to design a more simple study where two materials, which appear identical yet which have significantly different sustainability indexes, are tested. This would allow for a great range of material types to be tested but in a manageable way.

In terms of subject participation, while the design participants found the topic interesting and applicable to their field, the non-design participants were less open to the study and unknown factors may have been present. These include, not reading the information provided in effort to complete the questionnaire quickly, discussing the materials after completing the questionnaire with coworkers who had not yet entered the research space, etc. The offices used

were selected based on availability and gaining permission to conduct the research there. However, ideally, these non-design participants would be more controlled, such as a general recruitment not specific to an individual office, and having participants go through the materials independently as to reduce pressure and influence by other participants. A generalized recruitment would also have randomized the non-design participant sampling even further, making it more applicable to all non-designers regardless of office, company type or location.

In terms of future research to improve or expand on this research study, the suggestions on how the above limitations could be overcome would be one step towards improvement. Also, as previously stated, there are several iterations of the question order, wording and type sorting possible for the questionnaire. To reiterate, the questions began with two 'initial taste' ratings, followed by three 'aesthetic experience factor' questions, and one 'resulting like/dislike'. First, one possible alternative to the first 'initial taste' question would be to reword it using 'visually appealing' rather than 'aesthetically appealing' in order to remove the connotations of the term 'aesthetics'. Within the three 'aesthetic experience factor' questions, the order could be explored, perhaps with gauging sensory response first, then emotional, then intellectual, in effort to most accurately develop and gauge cognitive aesthetic experience. To make the scale more sensitive, the Likert scale could also be expanded to record reactions on a seven point scale rather than a five point scale. Also, the data trends displayed by the *Sustainability Rating x Information Level* interaction provided evidence that the fact chart information vehicle was more successful at disseminating the sustainability information and influencing aesthetic value. That the cognitive aesthetic theory suggests a narrative format as most influential, more research may be necessary to identify the best mode of information display. Overall, as a first example of empirically exploring cognitive aesthetic experience in relationship to sustainable design materials, several

more versions of the study could be conducted to pin point the most successful method of engaging the viewer towards the desired result.

Finally, another aspect of the research design that could have affected the outcomes is the physical qualities of the research spaces, especially lighting. The retail industry has a long history of using lighting to increase desirability and therefore, sales. A single research space used for all participants or ensuring equal lighting quality at all research settings could control for this factor.

5.5 Conclusion

In general, this study illustrates how the new aesthetic theory can make a successful move from fine art to the realm of design objects and in particular sustainable design materials. Building upon the theory of an everyday aesthetic, and embracing the value of cognitive aesthetics rather than pure hedonistic pleasure, design has provided an appropriate venue for philosophically based aesthetics. This is a step further in separating the term aesthetic, under the cognitive aesthetic experience, from the traditional construct of beauty, and towards making designers and non-designers aware of that significant distinction.

These findings support one avenue of sustainability advocacy, identifying a method of awareness and cognitive re-evaluation of preconceived notions. As the data analysis shows, there are differences between designers and non-designers in how they are able to synthesize the information regarding sustainability qualities into mind-changing instigators. The differences are derived from their fundamental everyday tasks, experiences and goals, as very different things sustainable products if they wish to improve the likelihood of having designers specify sustainable options. While data from the designers indicate a more consistent level of

environmental and sustainability awareness and knowledge, this can be overshadowed by the visual appeal of materials. In opposition, non-designers were not as significantly swayed by visual elements of the materials, favoring highly sustainable materials over low sustainable materials regardless of look. However, not all non-designers were influenced by the information, indicating that senior professionals were most likely not as familiar with or were not concerned with sustainability qualities.

The possibility of influencing sustainable product value-fit explored and proven to be successful in this study provides a point of change in the quest for elevating sustainability concern and sustainable product development and acceptance. Implementing a standard of information display with sustainable materials in the built environment is a key to a cyclical nature of manufacturer to designer to user relationship. The findings also suggest that the information may best be displayed as a chart or list for quick consumption by the viewer, rather than a paragraph. However, the cognitive aesthetic theory suggests that a narrative better activates the intellectual stimulus towards developing a full aesthetic experience. Despite the various areas for possible expansion and the need for a more in depth understanding of how some of the variables influence aesthetic value, the concept and promise it holds for achieving the necessary outcome is clear. Information is a powerful tool in the promotion of sustainability, and when constructed in a manner that fosters a cognitive aesthetic experience, can insight a change in overall desirability.

Appendix A:
Institutional Review Board for Human Participants exemption approval letter

Cornell University
Office of
Research Integrity and Assurance

East Hill Office Building, Suite 320
395 Pine Tree Road
Ithaca, NY 14850
p. 607-255-5138
f. 607-255-0758
www.irb.cornell.edu

Institutional Review Board for Human Participants

Concurrence of Exemption

To: Susanne Gruening
From: Matthew Aldridge, Senior IRB Administrator
Date: February 28, 2012

RE: **Protocol ID#:** 1202002810
Project(s): Going Beneath the Surface: The Role of Knowledge in Aesthetic Appreciation & Sustainable Material

A member of the Office of Research Integrity and Assurance (ORIA) has reviewed the above-referenced project and found it to qualify for **Exemption from IRB Review** according to paragraph #2 of the Department of Health and Human Services Code of Federal Regulations 45 CFR 46.101(b).

This proposal has not been evaluated for scientific merit, except to weigh the risk to the human participants in relation to the potential benefits.

Please be aware of the following:

- Exemption from IRB review does not absolve the investigator from ensuring that the welfare of the research subjects is protected and that methods used and information provided to gain participant consent are appropriate to the activity. It is your responsibility as a researcher to familiarize yourself with and conduct the research in accordance with the ethical standards of the Belmont Report (http://ohsr.od.nih.gov/guidelines/belmont.html).
- You must notify the ORIA office of changes or amendments to the above-referenced protocol **BEFORE** their implementation.
- You are not required to submit progress reports or requests for continuing review/approval to ORIA, unless you modify your study protocol.

c: John Elliott

Appendix B:
Thesis Research proposal letters to company contacts: Design office

Cornell University

College of Human Ecology
Department of Design & Environmental Analysis
Martha Van Rensselaer Hall
Ithaca, New York 14853-4401
t. 607.255.2168
f. 607.255.0305

January 25, 2012

Cathy Peterson
Gensler
10 North Park Place
Suite 400
Morristown, NJ 07960

Dear Ms Peterson,

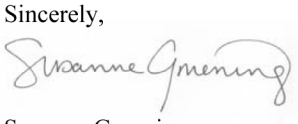
I am a second year master's student in the Design and Environmental Analysis department at Cornell University. For my thesis I am researching how providing information to viewers may affect aesthetic appreciation of sustainable materials. As design and architectural firms specify materials on a regular basis and are actively trying to elevate the field to focus on sustainable materials, I feel that it is vital that the subjects for this research be directly involved in the design and architectural professions. I would like the opportunity to use designers and other professionals who specify materials at Gensler as subjects for my research, reaching out to those who may very well benefit from the results when working with clients on sustainable choices.

The research will consist of having subjects complete a questionnaire to gauge their reaction to a range of materials displayed for them at varying levels of provided information. I plan on conducting the research the week of March 19-23, and would like to come to Gensler for one day that week. To conduct the research, I would require a conference room or like area in which the material samples could be displayed for the duration of the day, totaling approximately 30 feet of wall space. Professionals would be able to sign up for a time slot or could stop by at their convenience during the work day to complete the questionnaire which would take approximately 30 minutes. My goal is to have a total of 40 design and material specifying professionals at varying degrees of experience in their field, with hopefully as many as possible from Gensler.

The results of my research would be formally submitted to Cornell University as part of my thesis. If you wish, the results of the questionnaire may be provided for you in the form of a research summary or as the completed thesis.

I greatly appreciate your time and consideration. Please do not hesitate to contact me with any questions.

Sincerely,



Susanne Gruening
M.A. Design: Sustainable Design Studies, candidate 2012
T: 908.392.5114
Email: sgruening05@yahoo.com

Thesis Research proposal letters to company contacts: Non-Design office A

Cornell University

College of Human Ecology
Department of Design & Environmental Analysis
Martha Van Rensselaer Hall
Ithaca, New York 14853-4401
t. 607.255.2168
f. 607.255.0305

January 25, 2012

Manfred Dyck, President CEO
Hydromer, Inc.
35 Industrial Parkway
Branchburg, NJ 08876

Dear Mr. Dyck,

I am a second year master's student in the Design and Environmental Analysis department at Cornell University. For my thesis I am researching how providing information to viewers may affect aesthetic appreciation of sustainable materials, specifically wall-coverings. It is vital to my research to collect data from subjects in non-design fields as a comparison to design professionals. This will help to determine what roles education and background play in aesthetic judgment. I would like the opportunity to use Hydromer, Inc. employees as subjects for my research, reaching out to those who may not very often have the opportunity to interact with such materials, yet those who may be interested in the knowledge provided.

The research will consist of having subjects complete a questionnaire to gauge their reaction to a range of materials displayed for them at varying levels of provided information. I plan on conducting the research the week of March 19-23, and would like to come to Hydromer, Inc. for one day that week. To conduct the research, I would require a conference room or like area in which the material samples could be displayed for the duration of the day, totaling approximately 30 feet of wall space. Professionals would be able to sign up for a time slot or could stop by at their convenience during the work day to complete the questionnaire which would take approximately 30 minutes. My goal is to have a total of 40 professionals at varying degrees of experience in their field, with hopefully as many as possible from Hydromer, Inc.

The results of my research would be formally submitted to Cornell University as part of my thesis. If you wish, the results of the questionnaire may be provided for you in the form of a research summary or as the completed thesis.

I greatly appreciate your time and consideration. Please do not hesitate to contact me with any questions.

Sincerely,

Susanne Gruening
M.A. Design: Sustainable Design Studies, candidate 2012
T: 908.392.5114
Email: sjg239@cornell.edu

Thesis Research proposal letters to company contacts: Non-Design office B

Cornell University

College of Human Ecology
Department of Design & Environmental Analysis
Martha Van Rensselaer Hall
Ithaca, New York 14853-4401
t. 607.255.2168
f. 607.255.0305

June 25, 2012

Jennifer Hudler
Cornell Annual Fund
130 East Seneca Street, Suite 400
Ithaca, NY 14850

Dear Ms. Hudler,

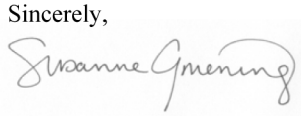
I am a second year master's student in the Design and Environmental Analysis department at Cornell University. For my thesis I am researching how providing information to viewers may affect aesthetic appreciation of sustainable materials, specifically wall-coverings. It is vital to my research to collect data from subjects in non-design fields as a comparison to design professionals. This will help to determine what roles education and background play in aesthetic judgment. I would like the opportunity to use Cornell Annual Fund employees as subjects for my research, reaching out to those who may not very often have the opportunity to interact with such materials, yet those who may be interested in the knowledge provided.

The research will consist of having subjects complete a questionnaire to gauge their reaction to a range of materials displayed for them at varying levels of provided information. I plan on conducting the research the week of June 25-29, and would like to come to the Cornell Annual Fund office for one day that week. To conduct the research, I would require a conference room or like area in which the material samples could be displayed for the duration of the day, totaling approximately 30 feet of wall space. Professionals would be able to sign up for a time slot or could stop by at their convenience during the work day to complete the questionnaire which would take approximately 30 minutes. My goal is to have approximately 25 professionals at varying degrees of experience in their field.

The results of my research would be formally submitted to Cornell University as part of my thesis. If you wish, the results of the questionnaire may be provided for you in the form of a research summary or as the completed thesis.

I greatly appreciate your time and consideration. Please do not hesitate to contact me with any questions.

Sincerely,



Susanne Gruening
M.A. Design: Sustainable Design Studies, candidate 2012
T: 908.392.5114
Email: sjg239@cornell.edu

Appendix C:
Thesis Research week prior to study office recruitment flyers: Design office

What do you find *beautiful?*

On Tuesday March 20th, get a chance to provide your insight by taking a 30 minute break out of your busy day to complete a brief questionnaire.

Questionnaire relies on aesthetic response to various wall surface materials.

*After completing the questionnaire, enter a raffle for a chance to win one of three $50 gift cards to Qdoba!

For more information contact:
Susanne Gruening
(one of your Summer 2011 interns!)
MA Design, candidate 2012
Cornell University
sjg239@cornell.edu

Thesis Research week prior to study office recruitment flyers: Non-Design office A

What do you find *beautiful?*

On Friday March 23rd, get a chance to provide your insight by taking a 30 minute break out of your busy day to complete a brief questionnaire.

Questionnaire relies on aesthetic response to various wall surface materials.

*After completing the questionnaire, enter a raffle for a chance to win a $75 gift card to the Stoney Brook Grille.

For more information contact:
Susanne Gruening
MA Design, candidate 2012
Cornell University
sjg239@cornell.edu

Thesis Research week prior to study office recruitment flyers: Non-Design office B

What do you find *beautiful?*

On Wednesday June 27th, get a chance to provide your insight by taking a 30 minute break out of your busy day to complete a brief questionnaire.

Questionnaire relies on aesthetic response to various wall surface materials.

*After completing the questionnaire,
enter a raffle for a chance to win a
$75 gift card to Starbucks!

For more information contact:
Susanne Gruening
MA Design, candidate 2012
Cornell University
sjg239@cornell.edu

Appendix D:
Thesis Research day of study office recruitment flyers: Design office

What do you find *beautiful?*

Get a chance to provide your insight:
TODAY, Tuesday March 20th
Take a 30 minute break out of your busy day to complete a brief questionnaire.
Stop by **Conference Room C** anytime between 10:30 and 3:00 to participate.

All are welcome to participate!

Questionnaire relies on aesthetic response to various wall surface materials.

*After completing the questionnaire, enter a raffle for a chance to win one of three **$50** gift cards to Qdoba!

reserach conducted by:
Susanne Gruening
(one of your Summer 2011 interns!)
MA Design, candidate 2012
Cornell University
sjg239@cornell.edu

Thesis Research day of study office recruitment flyers: Non-Design office A

What do you find *beautiful?*

Get a chance to provide your insight:
TODAY, Friday March 23rd
Take a 30 minute break out of your busy day to complete a brief questionnaire.
Stop by to participate.

All are welcome to participate!

Questionnaire relies on aesthetic response to various wall surface materials.

*After completing the questionnaire, enter a raffle for a chance to win a $75 gift card to the Stoney Brook Grille!

reserach conducted by:
Susanne Gruening
MA Design, candidate 2012
Cornell University
sjg239@cornell.edu

Thesis Research day of study office recruitment flyers: Non-Design office B

What do you find *beautiful?*

Get a chance to provide your insight:
TODAY, Wednesday June 27th
Take a 30 minute break out of your busy day to complete a brief questionnaire.
Stop by the **Ramin Room** between Noon & 4pm to participate.

All are welcome to participate!

Questionnaire relies on aesthetic response to various wall surface materials.

*After completing the questionnaire,
enter a raffle for a chance to win a
$75 gift card to Starbucks!

reserach conducted by:
Susanne Gruening
MA Design, candidate 2012
Cornell University
sjg239@cornell.edu

Appendix E:
Verbal Consent information: Design office

What Do You Find Beautiful?
Aesthetic Preference for Wall Surface Materials

You are being asked to take part in a research study on your aesthetic preference and appreciation of wall surface materials. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about:
The purpose of this study is to gain an understanding of which elements of interior materials may influence aesthetic appreciation and to what degree. Participants will divided into two groups based on experience with/knowledge of specifying materials for interior design projects.

What we will ask you to do:
If you agree to be in this study, you will first be asked to respond to a few general questions, such as the number of years you have worked in the design (or related to design) field. You will then be asked to rate a set of nine (9) examples of interior wall surface materials. The rating questionnaire will include questions regarding your preference and perception of the materials presented independently from one another. There will also be a few follow up questions at the end. To review all of the materials and to complete the questionnaire for each will take approximately 30 minutes.

Risks and benefits:
I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life.
There are no benefits to you other than being part of a master's thesis research study.

Compensation:
Upon completion of the questionnaire you may enter a raffle to win one of three $50 gift cards. A winner will be chosen from the participant pool from this location at the end of the research day.

Your answers will be confidential.
The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records.

Taking part is voluntary:
Taking part in this study is completely voluntary. You may skip any questionsthat you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Gensler. If you decide to take part, you are free to withdraw at any time.

If you have questions:
The researcher conducting this study is Susanne Gruening. Please ask any questions you have now. If you have questions later, you may contact Susanne Gruening at sjg239@cornell.edu or 908-392-5114. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

You may keep this form for your records.

Statement of Consent:
I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Please provide verbal consent to the researcher by acknowledging and agreeing to the above statement.

Verbal Consent information: Non-Design office A

What Do You Find Beautiful?
Aesthetic Preference for Wall Surface Materials

You are being asked to take part in a research study on your aesthetic preference and appreciation of wall surface materials. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about:
The purpose of this study is to gain an understanding of which elements of interior materials may influence aesthetic appreciation and to what degree. You may be employed in any field to participate.

What we will ask you to do:
If you agree to be in this study, you will first be asked to respond to a few general questions, such as the number of years you have worked in your field. You will then be asked to rate a set of nine (9) examples of interior wall surface materials. The rating questionnaire will include questions regarding your preference and perception of the materials presented independently from one another. There will also be a few follow up questions at the end. To review all of the materials and to complete the questionnaire for each will take approximately 30 minutes.

Risks and benefits:
I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life.
There are no benefits to you other than being part of a master's thesis research study.

Compensation:
Upon completion of the questionnaire you may enter a raffle to win a $75 gift card. A winner will be chosen from the participant pool specific to this location at the end of the research day.

Your answers will be confidential.
The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records.

Taking part is voluntary:
Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Hydromer, Inc. If you decide to take part, you are free to withdraw at any time.

If you have questions:
The researcher conducting this study is Susanne Gruening. Please ask any questions you have now. If you have questions later, you may contact Susanne Gruening at sjg239@cornell.edu or 908-392-5114. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

You may keep this form for your records.

Statement of Consent:
I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Please provide verbal consent to the researcher by acknowledging and agreeing to the above statement.

Verbal Consent information: Non-Design office B

What Do You Find Beautiful?
Aesthetic Preference for Wall Surface Materials

You are being asked to take part in a research study on your aesthetic preference and appreciation of wall surface materials. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about:
The purpose of this study is to gain an understanding of which elements of interior materials may influence aesthetic appreciation and to what degree. You may be employed in any field to participate.

What we will ask you to do:
If you agree to be in this study, you will first be asked to respond to a few general questions, such as the number of years you have worked in your field. You will then be asked to rate a set of nine (9) examples of interior wall surface materials. The rating questionnaire will include questions regarding your preference and perception of the materials presented independently from one another. There will also be a few follow up questions at the end. To review all of the materials and to complete the questionnaire for each will take approximately 20 minutes.

Risks and benefits:
I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life.
There are no benefits to you other than being part of a master's thesis research study.

Compensation:
Upon completion of the questionnaire you may enter a raffle to win a $75 gift card. A winner will be chosen from the participant pool specific to this location at the end of the research day.

Your answers will be confidential.
The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records.

Taking part is voluntary:
Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Cornell University. If you decide to take part, you are free to withdraw at any time.

If you have questions:
The researcher conducting this study is Susanne Gruening. Please ask any questions you have now. If you have questions later, you may contact Susanne Gruening at sjg239@cornell.edu or 908-392-5114. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

You may keep this form for your records.

Statement of Consent:
I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Please provide verbal consent to the researcher by acknowledging and agreeing to the above statement.

Verbal Consent information: Design & Non-Design Students

What Do You Find Beautiful?
Aesthetic Preference for Wall Surface Materials

You are being asked to take part in a research study on your aesthetic preference and appreciation of wall surface materials. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about:
The purpose of this study is to gain an understanding of which elements of interior materials may influence aesthetic appreciation and to what degree. You may be a student in any field to participate.

What we will ask you to do:
If you agree to be in this study, you will first be asked to respond to a few general questions, such student year (freshman, sophomore, etc). You will then be asked to rate a set of nine (9) examples of interior wall surface materials. The rating questionnaire will include questions regarding your preference and perception of the materials presented independently from one another. There will also be a few follow up questions at the end. To review all of the materials and to complete the questionnaire for each will take approximately 30 minutes.

Risks and benefits:
I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life.
There are no benefits to you other than being part of a master's thesis research study.

Compensation:
Upon completion of the questionnaire if you have enrolled in the study for extra credit for a course, it will be verified that you completed the study and should receive credit.

Your answers will be confidential.
The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records.

Taking part is voluntary:
Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Cornell University. If you decide to take part, you are free to withdraw at any time.

If you have questions:
The researcher conducting this study is Susanne Gruening. Please ask any questions you have now. If you have questions later, you may contact Susanne Gruening at sjg239@cornell.edu or 908-392-5114. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

You may keep this form for your records.

Statement of Consent:
I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Please provide verbal consent to the researcher by acknowledging and agreeing to the above statement.

Appendix F:
Sustainable Product Certification summary charts: MBDC Cradle to Cradle

MBDC

SUMMARY OF CRADLE TO CRADLE® CERTIFICATION CRITERIA

	Basic	Silver	Gold	Platinum
1.0 Material Health				
All material ingredients identified (down to the 100 ppm level)	●	●	●	●
Defined as biological or technical nutrient	●	●	●	●
All materials assessed based on their intended use and impact on Human/Environmental Health according to the following criteria: ***Human Health:*** Carcinogenicity Endocrine Disruption Mutagenicity Reproductive Toxicity Teratogenicity Acute Toxicity Chronic Toxicity Irritation Sensitization ***Environmental Health:*** Fish Toxicity Algae Toxicity Daphnia Toxicity Persistence/Biodegradation Bioaccumulation Ozone Depletion/Climatic Relevance ***Material Class Criteria:*** Content of Organohalogens Content of Heavy Metals	●	●	●	●
Strategy developed to optimize all remaining problematic ingredients/materials	●	●		
Product formulation optimized (i.e., all problematic inputs replaced/phased out)			●	●
No wood sourced from endangered forests			●	●
Meets Cradle to Cradle emission standards			●	●
All wood is FSC certified				●
Contains at least 50% GREEN assessed components				●
2.0 Material Reutilization				
Defined the appropriate cycle (i.e., Technical or Biological) for the product and developing a plan for product recovery and reutilization	●	●	●	●
Well defined plan (including scope and budget) for developing the logistics and recovery systems for this class of product			●	●
Recovering, remanufacturing or recycling the product into new product of equal or higher value				●
Product has been designed/manufactured for the technical or biological cycle and has a nutrient (re)utilization score >= 50		●	●	●
Product has been designed/manufactured for the technical or biological cycle and has a nutrient (re)utilization score >= 65			●	●
Product has been designed/manufactured for the technical or biological cycle and has a nutrient (re)utilization score >= 80				●
3.0 Renewable Energy Use				
Characterized energy use and source(s) for product manufacture/assembly	●	●	●	●
Developed strategy for using current solar income for product manufacture/assembly		●	●	●
Using 50% current solar income for product final manufacture/assembly			●	●
Using 50% current solar income for entire product				●
4.0 Water Stewardship				
Created or adopted water stewardship principles/guidelines		●	●	●
Characterized water flows associated with product manufacture			●	●
Implemented water conservation measures				●
Implemented innovative measures to improve quality of water discharges				●
5.0 Social Responsibility				
Publicly available corporate ethics and fair labor statement(s), adopted across entire company		●	●	●
Identified third party assessment system and begun to collect data for that system			●	●
Acceptable third party social responsibility assessment, accreditation, or certification				●

Sustainable Product Certification summary charts: MTS SMaRT

SMART©

MTS

Sustainable Materials Rating Technology©

Approved SMART Consensus Textile Standard 2.0©

Yes	?	No			
			Safe for Public Health & Environment (PHE)	**31 Points**	
1			PHE 1-1	Feedstock Inventory Documentation	Required
1			PHE 1-2	Input Stockholm Chemicals	Required
1			PHE 1-3	Output Stockholm Chemicals	Required
			PHE 2-1	Inventory human and ecological health chemical emissions	2
			PHE 2-2	Inventory Air, Water & Waste (Media) Pollutants	2
			PHE 2-4	Reductions Beyond Compliance	8
			PHE 3-1	10-25% Reduction in Toxic Chemicals & Media Pollutants	2
			PHE 3-2	Minimize Indoor Air VOCs	1
			PHE 3-3	Minimize Indoor Air Carcinogenic VOCs	1
			PHE 4-1	26-50% Reduction in Toxic Chemicals & Media Pollutants	2
			PHE 4-2	Minimize Indoor Formaldehyde Emissions	1
			PHE 4-3	No PBDE	1
			PHE 5-1	51-75% Reduction in Toxic Chemicals & Media Pollutants	2
			PHE 5-2	Supply Chain inventory and limit on Stockholm Chemicals	3
			PHE 6-1	No or De Minimis Toxic Chemicals & Media Pollutants	3

Yes	?	No			
			Renewable Energy & Energy Efficiency (RE)	**19 Points**	
			Manufacturing Facility Only:		
1			RE 1-1	Electrical and Thermal Energy Inventory	Required
			RE 2-1	1% Renewable Energy	2
			RE 2-2	Cleaner & Greener Certification Level 2	1
			RE 3-1	2% Renewable Energy	1
			RE 3-2	5% Renewable Energy	1
			RE 3-3	8% Renewable Energy	1
			RE 3-4	Certification of Climate Change Emission Reductions	1
			RE 4-1	11% Renewable Energy	1
			RE 4-2	15% Renewable Energy	1
			RE 4-3	20% Renewable Energy	1
			RE 5-1	26% Renewable Energy	1
			RE 5-2	35% or More Renewable Energy	1
			Upstream Stages:		
			RE 4-4	1-25% Renewable Energy	2
			RE 5-3	26-50% Renewable Energy	2
			RE 6-1	51% Renewable Energy	1
			RE 6-2	75% or More Renewable Energy or 28-35% or More Energy Reduction	1

Yes	?	No				
			Biobased or Recycled (MATLS)		**23 Points**	
2			MATLS 1-1	Inventory Biobased and Recycled Content Materials		Required
			MATLS 2-1	5% biobased, recycled content, or EPP material		1
			MATLS 2-2	10% biobased, recycled content, or EPP material		1
			MATLS 2-3	15% biobased, recycled content, or EPP material		1
			MATLS 2-4	20% biobased, recycled content, or EPP material		1
			MATLS 3-1	25% biobased, recycled content, or EPP material		1
			MATLS 3-2	30% biobased, recycled content, or EPP material		1
			MATLS 3-3	35% biobased, recycled content, or EPP material		1
			MATLS 3-4	40% biobased, recycled content, or EPP material		1
			MATLS 4-2	45% biobased or recycled content		1
			MATLS 4-3	50% biobased or recycled content		2
			MATLS 4-4	60% biobased or recycled content	Recycled: 3	Biobased: 4
			MATLS 5-2	70% biobased or recycled content		2
			MATLS 5-3	75% biobased or recycled content	Recycled: 2	Biobased: 3
			MATLS 5-4	80% biobased or recycled content	Recycled: 3	Biobased: 4
			MATLS 6-2	88% biobased or recycled content		2
			MATLS 6-3	91% biobased or recycled content	Recycled: 2	Biobased: 4
			MATLS 6-4	94% biobased or recycled content	Recycled: 3	Biobased: 4
			MATLS 6-5	97% biobased or recycled content	Recycled: 4	Biobased: 5

Yes	?	No				
			Facility or Company Based (MFG)		**18 Points**	
1			MFG 1-1	EMS Environmental Policy & Targets		Required
1			MFG 1-2	Social Indicator Reporting for Manufacturer		Required
			MFG 2-1	Social Indicator Reporting for Supplier		1
			MFG 2-2	LCA Process Required		4
			MFG 3-1	Transparent Secondary Materials Reclamation System		1
			MFG 3-2	Transparent Materials Reclamation System	Postindustrial:1	Postconsumer:2
			MFG 3-3	Transparent Repurpose Materials Reclamation System		2
			MFG 4-1	Identify Adopted Design for Environment Process		2
			MFG 5-1	Environmental Management System Certification		2
			MFG 6-1	Sustainable Textile Transaction Disclosures		2

Yes	?	No				
			Reclamation, Sustainable Reuse, & End of Life Management (EOL)		**22 points**	
1			EOL 1-1	Operational Reclamation Program		Required
1			EOL 1-2	Performance Durability		Required
			EOL 2-1	Extended Product Life of System		2
			EOL 2-2 -- 2-4	1-6% Product Reclamation [1 pt every 2%]		3
			EOL 3-1 -- 3-3	7-12% Product Reclamation [1 pt every 2%]		3
			EOL 4-1 -- 4-4	13- 20% Product Reclamation [1 pt every 2%]		3
			EOL 5-1 -- 5-5	21- 30% Product Reclamation [1 pt every 2%]		5
			EOL 6-1 -- 6-4	30% or More Product Reclamation [1 pt for 2% until 40%]		4

Yes	?	No				
			Innovation (Bonus Points)		**15 Points**	
			Innovation 1	EOL 6-5 -- 6-11 1pt for 10% more Reclamation [41-100%]		7
			Innovation 2	Dematerialization (less material by % weight)		5
			Innovation 3	Energy Efficiency (by sq. yard of product or facility)		3

Yes	?	No		
10			**Subtotal Required Credits**	
			Product Total	

MTS Certified Textile Achievement - Sustainable 28-36 pts **Silver** 37-51 pts **Gold** 52-70 pts **Platinum** 71-113 pt

Sustainable Product Certification summary charts: level

Materials

Prerequisites & Credits	Organization	Facility	Product	Totals
5.1 Prerequisite-Design for Environment		Required		
5.2 Climate Neutral Materials			1	**1**
5.3 Life Cycle Assessment			3	**3**
5.4 Efficient Use of Materials			2	**2**
5.5 Rapidly Renewable Materials			2	**2**
5.6 Bio-based Renewable Materials			2	**2**
5.7 Recycled Content			3	**3**
5.8 Recyclable & Biodegradeable Materials			1	**1**
5.9 Extended Product Responsibility	3		3	**6**
5.10 Solid Waste Management	2			**2**
5.11 Water Management		4		**4**
Totals:	**5**	**4**	**17**	**26**

Energy & Atmosphere

Prerequisites & Credits	Organization	Facility	Product	Totals
6.1 Prerequisite-Develop Energy Policy		Required		
6.2 Building Energy Performance Baseline		3		**3**
6.3 Building Energy Performance Rating		4		**4**
6.4 LEED Certified Facility		2		**2**
6.5 Embodied Energy			3	**3**
6.6 Finished Product Energy Consumption			1	**1**
6.7 Transportation	2			**2**
6.8 On-Site & Off-Site Renewable Energy		4		**4**
6.9 Greenhouse Gases	2	4		**6**
Totals:	**4**	**17**	**4**	**25**

Human & Ecosystem Health

Prerequisites & Credits	Organization	Facility	Product	Totals
7.1 Prerequisite-Demonstration of Compliance: Key Chemical, Risk & EMS Policies	Required			
7.2 ISO 14001 or Equivalent		2		**2**
7.3 Chemical Management Plan (CMP)		1		**1**
7.4 Effects of Product, Process and Maintenance Chemicals		3	4	**7**
7.5 Reduction/Elimination of Chemicals of Concern		9	8	**17**
7.6 Low Emitting Furniture			2	**2**
Totals:	**0**	**15**	**14**	**29**

Social Responsibility

Prerequisites & Credits	Organization	Facility	Product	Totals
8.1 Prerequisite-Employee Health & Safety, Labor and Human Rights	Required			
8.2 Policy on Social Responsibility	1			**1**
8.3 External Health and Safety Management Standard		1		**1**
8.4 Inclusiveness		1		**1**
8.5 Engage in community outreach and involvement	1			**1**
8.6 Social Responsibility Reporting	3			**3**
8.7 Supply Chain	3			**3**
Totals:	**8**	**2**	**0**	**10**

Appendix G:
Questionnaire packets: general participant information page: Design office

What do you find
beautiful?

To begin, please answer the following general questions:

1) Are you at least 22 years of age? (circle one)

Yes No

2) What is your occupation/ profession?

_____

3) How many total years have you been employed in your field?

_____ years

4) Do you have any experience specifying interior finish materials? (circle one)

Yes No

Please move about the room to each material displayed in order of the numbers indicated on each material. Using the questionnaire sheets, assess your reaction to each material independently of one another. Feel free to interact with the material in any way you would like.

Questionnaire packets: general participant information page: Non-Design offices

What do you find *beautiful?*

To begin, please answer the following general questions:

1) Are you at least 22 years of age? (circle one)

Yes No

2) What is your occupation/ profession?

_____

3) How many total years have you been employed in your field?

_____ years

Please move about the room to each material displayed in order of the numbers indicated on each material. Using the questionnaire sheets, assess your reaction to each material independently of one another. Feel free to interact with the material in any way you would like.

Questionnaire packets: general participant information page: Design & Non-Design Students

What do you find *beautiful?*

To begin, please answer the following general questions:

1) Are you at least 18 years of age? (circle one)

Yes No

2) Please indicate your major and department:

_____

3) What is your class status? (circle one)

freshman (1st yr.)

sophomore (2nd yr.)

junior (3rd yr.)

senior (4th yr.)

5th year

Please move about the room to each material displayed in order of the numbers indicated on each material. Using the questionnaire sheets, assess your reaction to each material independently of one another. Feel free to interact with the material in any way you would like.

Appendix H:
Questionnaire packets: paragraph information with questions

1

This company's environmental mission is "to produce a product line that is harmonious with nature and minimizes the impact of construction". To do so, they have become a Certified B Corporation, an organization which promotes "the power of business to solve social and environmental problems", adopting its environmental management system. The product is manufactured in the United States using human and renewable energy credit energy and no water. The product is a mono-material composed of 100% reclaimed yellow poplar bark, a by-product of the forest industry, from FSC (Forest Stewardship Council) certified forest sources in the United States. The product contains no chemicals of concern and emits zero VOCs (volatile organic compounds), and any manufacturing waste is fully biodegradable. At the end of its up to 80 year life, the product cannot be returned to the company, but is fully biodegradable. Based on these attributes, the product is Cradle to Cradle Gold certified (a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles).

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is that they are "constantly searching for the latest environmentally sound materials each and every day". The company's environmental and manufacturing waste management system, water discharge regulations, and the material's country of origin are unknown. The product is 100% polyethylene, a high processed material, manufactured using solar (<50%) and other energy sources, and water conservation methods. The product has no recycled or reclaimed content. The product is manufactured in the United States, and limits chemicals of concern and emits low levels of VOCs (volatile organic compounds), earning it an SCS Indoor Advantage Gold certification. At the end of its up to 20 year life, the product can be returned to the company to be recycled into energy. Based on these attributes, the product is Cradle to Cradle Silver certified (a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles).

2

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is "to design and deliver innovative solutions that benefit human and environmental health, while educating and challenging ourselves, our suppliers and customers". As part of this, the company operates under the guidelines of the NSF/ANSI 336 standards (certifies furnishing fabric companies that adopt environmentally aware operational practices and business approaches). The product is 100% polyester, a high processed material, manufactured using unknown and renewable energy credit energy sources and water conservation methods. As part of a waste management system, production waste is reutilized. Any water discharge regulations and the material's country of origin are unknown. The product does not have recycled or reclaimed content, and does not have any third party certifications. The product is manufactured in the United States and is chemically optimized to eliminate toxicity and reduce VOC (volatile organic compound) emissions. At the end of its up to 10 year life, the product can be returned to the company to be recycled for use in similar products. The product does not have any third party certifications.

3

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is that "we will not only comply with all applicable laws, policies and regulations which govern environmental awareness, we will expand that commitment to encompass the choices of product which we select to distribute". As part of this, the company operates under the guidelines of the NSF/ANSI 342 standards (certifies wallcovering products and companies that adopt environmentally aware operation practices and business approaches). The company's waste management system consists of reducing the waste stream and its pollutants, and recycling pre-consumer waste. Energy sources, water discharge regulations, and the material's country of origin are unknown. The product is 100% paperweave, a low processed rapidly renewable material, manufactured using energy and water conservation methods. The product does not have any recycled or reclaimed content. The product is manufactured in the United States, has limited chemicals of concern, and has low VOC (volatile organic compound) emissions. At the end of its up to 5 year life, the product can be returned to the company and is biodegradable. The product does not have any third party certifications.

4

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is "to design and deliver innovative solutions that benefit human and environmental health, while educating and challenging ourselves, our suppliers and customers". As part of this, the company operates under the guidelines of the NSF/ANSI 336 standards (certifies furnishing fabric companies that adopt environmentally aware operational practices and business approaches). The product is 100% polyester, a high processed material, manufactured using unknown and renewable energy credit energy sources and water conservation methods. As part of a waste management system, production waste is reutilized. Any water discharge regulations and the material's country of origin are unknown, and the product does not have recycled or reclaimed content. The product is manufactured in the United States and has low VOC (volatile organic compound) emissions. The presence or level of chemicals of concern is unknown. At the end of its up to 10 year life, the product cannot be returned to the company and is landfilled. The product does not have any third party certifications.

5

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is that the material is made in an environmentally considerate process that dates from pre-Columbian times, and for every tree harvested, another is planted in its place. Any environmental or waste management systems, renewable energy sources, water use and discharge regulations, and the material's country of origin are unknown. The product is 100% tree bark, a mono-material, manufactured using human power and solar drying methods. The product does not contain recycled or reclaimed content and the tree bark forest source is unknown. The product is manufactured in the United States, and has no chemicals of concern or VOC (volatile organic compound) emissions when left un-dyed. At the end of its life of unknown years, the product is compostable. The company does not take back the product for composting. The product does not have any third party certifications.

6

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is that they "are committed to measuring the results of our efforts to have a neutral impact on climate change". To aid in doing so, the company operates under the guidelines of the ISO 14001 standard (an environmental management system where companies must identify and control the environmental impact of its activities, products or services, and improve its environmental performance continually). As part of a waste management system, the company diverts 88% of its manufacturing waste from landfills. The product is 100% PVC (polyvinyl chloride), a high process material, manufactured in the United States using unknown energy source(s). The company does use an 'energy from waste' energy consumption reduction method, and water conservation methods. Any water discharge regulations and the material's country of origin are unknown. The presence or level of chemicals of concern, and VOC (volatile organic compound) levels are unknown, and the product does not have recycled or reclaimed content. At the end of its lifespan of unknown years, the product cannot be returned to the company and is landfilled. The product does not have any third party certifications.

7

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is that "through innovation and technological advancement, we will continue to offer the most sound materials and manufacturing methods on the market today". The company does not have a known environmental or waste management system in place. The product is manufactured in the United States from 100% TPO (thermoplastic olefin), a high processed material, with 20% post-consumer recycled content. The manufacturing energy source, water consumption and discharge guidelines are unknown. The presence or level of chemicals of concern, and the material's country of origin are unknown. The product has low VOC (volatile organic compound) emissions, as per California standard 01350. At the end of its lifespan of unknown years, the product can be returned to the company and recycled. The product does not have any third party certifications.

8

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

This company's environmental mission is "to give you a wood panel that is sensitive to your design needs, built to last, and still 100% conscious of the environmental impact". The company has no known environmental or waste management system in place. The product is a Zebrawood veneer, an endangered forest species, on an unknown backing, containing no recycled or reclaimed material. Manufacturing energy source, water consumption, and water discharge guidelines are unknown. The product country of manufacture is unknown, and the wood veneer material is from Italy. The presence or level of chemicals of concern, and VOC (volatile organic compound) emission levels are unknown. At the end of the products lifespan of unknown years, the product cannot be returned to the company and is landfilled. The product has no third party certifications.

9

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

Appendix I:
Questionnaire packets: fact chart information with questions

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"to produce a product line that is harmonious with nature and minimizes the impact of construction"
Environmental management system	Certified B Corporation*
Third party material certifications(s)	Cradle to Cradle Gold**
Manufacturing waste management system	all waste is biodegradable
Material composition disclosure (parts per million)	yes, 100% poplar tree bark
Material processing level	mono-material (single material)
Recycled/ reclaimed content	100% reclaimed: bi- product of forest industry
Rapidly renewable	no
Manufacturing energy source	human energy, electricity
Renewable energy source	grid electricity offset by renewable energy credits
Water stewardship principles/guidelines	no water is used in manufacturing process
Water conservation system	no water is used in manufacturing process
Water discharge management	no water is used in manufacturing process
Wood source	FSC certified Yellow Poplar forests***
Country of material origin	United States
Country of manufacture	United States
Chemicals of concern	none; is non-carcinogenic, non-toxic, non-hazardous
VOC (volatile organic compound) emission level	zero emissions
Lifespan	up to 80 years
Extended company product responsibility system	no
End of life product disposal method	100% biodegradable, ground as mulch

* "Certified B Corporations are a new type of corporation which uses the power of business to solve social and environmental problems" (www.bcorporation.net)

** "The Cradle to Cradle CertifiedCM program is a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles" (www.mbdc.com)

*** "FSC (Forest Stewardship Council) is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests" (www.fsc.org)

1

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 Very Low 2 3 Neutral 4 5 Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 Very Low 2 3 Neutral 4 5 Very High

3) To what degree does the material elicit an emotional response?

1 Very Low 2 3 Neutral 4 5 Very High

4) To what degree does the material elicit an intellectual response?

1 Very Low 2 3 Neutral 4 5 Very High

5) To what degree do you feel a sensory response to the material?

1 Very Low 2 3 Neutral 4 5 Very High

6) Overall, to what degree do you like the material?

1 Very Low 2 3 Neutral 4 5 Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	we are "constantly searching for the latest environmentally sound materials each and every day"
Environmental management system	unknown
Third party material certifications(s)	Cradle to Cradle Silver* SCS Gold**
Manufacturing waste management system	unknown
Material composition disclosure (parts per million)	yes
Material processing level	high, 100% polyethylene
Recycled/ reclaimed content	none
Rapidly renewable	no
Manufacturing energy source	solar energy, electricity
Renewable energy source	solar energy (<50%)
Water stewardship principles/guidelines	yes
Water conservation system	yes
Water discharge management	no waste water produced
Wood source	not applicable
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	chlorine free, no plasticizers or stabilizers; is non-carcinogenic, non-toxic, non-hazardous
VOC (volatile organic compound) emission level	low, is SCS Gold certified**
Lifespan	up to 20 years
Extended company product responsibility system	yes
End of life product disposal method	reusable or recycled into energy by company

* "The Cradle to Cradle CertifiedCM program is a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles" (www.mbdc.com)

** Conservative VOC (volatile organic compound) standards intended to ensure that individual occupants' overall exposure to any one of 80 chemicals does not exceed the CREL (Chronic Reference Exposure Levels). (www.scscertified.com)

2

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"to design and deliver innovative solutions that benefit human and environmental health"
Environmental management system	operates under guidance of NSF/ANSI 336*
Third party material certifications(s)	none
Manufacturing waste management system	reutilizes production waste
Material composition disclosure (parts per million)	no
Material processing level	high, 100% polyester
Recycled/ reclaimed content	none
Rapidly renewable	no
Manufacturing energy source	unknown
Renewable energy source	some renewable energy credits
Water stewardship principles/guidelines	unknown
Water conservation system	yes
Water discharge management	unknown
Wood source	not applicable
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	chemically optimized to eliminate toxicity
VOC (volatile organic compound) emission level	low
Lifespan	up to 10 years
Extended company product responsibility system	yes
End of life product disposal method	recyclable into similar products

* NSF/ANSI 336 addresses the environmental, economic and social aspects of furnishing fabric products, certifying companies that adopt more sustainable operational practices and business approaches. (www.nsf.org)

3

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"We... comply with all applicable... regulations which govern environmental awareness, [and] we will expand that commitment to encompass the choices of product which we select to distribute"
Environmental management system	operates under guidance of NSF/ANSI 342*
Third party material certifications(s)	none
Manufacturing waste management system	reduces waste stream and limits its pollutants, recycles pre-consumer waste
Material composition disclosure (parts per million)	no
Material processing level	low, paper weave and paper backing
Recycled/ reclaimed content	none
Rapidly renewable	yes
Manufacturing energy source	unknown, reduces energy consumption
Renewable energy source	unknown
Water stewardship principles/guidelines	unknown
Water conservation system	yes
Water discharge management	unknown
Wood source	not applicable
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	reduced levels, is non-carcinogenic, non-toxic, non-hazardous
VOC (volatile organic compound) emission level	low
Lifespan	5 years or less
Extended company product responsibility system	yes
End of life product disposal method	biodegradable

* NSF/ANSI 342 is an assessment for wallcoverings based on performance criteria for product design, product manufacturing, long-term value, end-of-life management, corporate governance, and innovation (www.nsf.org)

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"to design and deliver innovative solutions that benefit human and environmental health"
Environmental management system	operates under guidance of NSF/ANSI 336*
Third party material certifications(s)	none
Manufacturing waste management system	reutilizes production waste
Material composition disclosure (parts per million)	no
Material processing level	high, 100% polyester
Recycled/ reclaimed content	none
Rapidly renewable	no
Manufacturing energy source	unknown
Renewable energy source	some renewable energy credits
Water stewardship principles/guidelines	unknown
Water conservation system	yes
Water discharge management	unknown
Wood source	not applicable
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	unknown
VOC (volatile organic compound) emission level	low
Lifespan	up to 10 years
Extended company product responsibility system	no
End of life product disposal method	landfill

5

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	Material is made in an environmentally responsible process that dates from pre-Columbian times. For every tree harvested, another is planted in its place.
Environmental management system	unknown
Third party material certifications(s)	none
Manufacturing waste management system	unknown
Material composition disclosure (parts per million)	yes, 100% tree bark
Material processing level	low
Recycled/ reclaimed content	none
Rapidly renewable	no
Manufacturing energy source	human energy, solar drying method, other
Renewable energy source	some solar
Water stewardship principles/guidelines	unknown
Water conservation system	unknown
Water discharge management	unknown
Wood source	unknown
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	none when left un-dyed, is non-carcinogenic, non-toxic, non-hazardous
VOC (volatile organic compound) emission level	low, when left undyed
Lifespan	unknown
Extended company product responsibility system	no
End of life product disposal method	compostable

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"committed to measuring the results of our efforts to have a neutral impact on climate change"
Environmental management system	operates under guidance of ISO 14001*
Third party material certifications(s)	none
Manufacturing waste management system	diverts 88% of waste from landfills
Material composition disclosure (parts per million)	no
Material processing level	high, 100% PVC (polyvinyl chloride)
Recycled/ reclaimed content	none
Rapidly renewable	no
Manufacturing energy source	unknown
Renewable energy source	energy from waste' system
Water stewardship principles/guidelines	unknown
Water conservation system	yes
Water discharge management	unknown
Wood source	not applicable
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	unknown
VOC (volatile organic compound) emission level	unknown
Lifespan	unknown
Extended company product responsibility system	no
End of life product disposal method	landfill

* ISO 14001 is an environmental management system where companies must identify and control the environmental impact of its activities, products or services, and improve its environmental performance continually. (www.iso.org)

7

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"through innovation and technological advancement, we will continue to offer the most sound materials and manufacturing methods on the market today"
Environmental management system	unknown
Third party material certifications(s)	none
Manufacturing waste management system	unknown
Material composition disclosure (parts per million)	no
Material processing level	high, 100% TPO (thermoplastic olefin)
Recycled/ reclaimed content	20% post-consumer recycled content
Rapidly renewable	no
Manufacturing energy source	unknown
Renewable energy source	no
Water stewardship principles/guidelines	unknown
Water conservation system	no
Water discharge management	no
Wood source	not applicable
Country of material origin	unknown
Country of manufacture	United States
Chemicals of concern	unknown
VOC (volatile organic compound) emission level	low
Lifespan	unknown
Extended company product responsibility system	yes
End of life product disposal method	recyclable

* ISO 14001 is an environmental management system where companies must identify and control the environmental impact of its activities, products or services, and improve its environmental performance continually. (www.iso.org)

8

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Attribute	*Manufacturer & Material Specifics*
Environmental mission	"to give you a wood panel that is sensitive to your design needs, built to last, and still 100% conscious of the environmental impact"
Environmental management system	unknown
Third party material certifications(s)	none
Manufacturing waste management system	unknown
Material composition disclosure (parts per million)	no
Material processing level	unknown, Zebrawood veneer on unknown backing
Recycled/ reclaimed content	no
Rapidly renewable	no
Manufacturing energy source	unknown
Renewable energy source	no
Water stewardship principles/guidelines	unknown
Water conservation system	no
Water discharge management	no
Wood source	unknown, endangered wood species
Country of material origin	wood from Italy
Country of manufacture	unknown
Chemicals of concern	unknown
VOC (volatile organic compound) emission level	unknown
Lifespan	unknown
Extended company product responsibility system	no
End of life product disposal method	landfilled

* ISO 14001 is an environmental management system where companies must identify and control the environmental impact of its activities, products or services, and improve its environmental performance continually. (www.iso.org)

9

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1 2 3 4 5
Very Low Neutral Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1 2 3 4 5
Very Low Neutral Very High

3) To what degree does the material elicit an emotional response?

1 2 3 4 5
Very Low Neutral Very High

4) To what degree does the material elicit an intellectual response?

1 2 3 4 5
Very Low Neutral Very High

5) To what degree do you feel a sensory response to the material?

1 2 3 4 5
Very Low Neutral Very High

6) Overall, to what degree do you like the material?

1 2 3 4 5
Very Low Neutral Very High

Appendix J:
Questionnaire packets: sample no information page with questions

1

Based on the display information provided, please circle one number, 1 (very low) through 5 (very high) to indicate your answer for each question:

1) To what degree do you find the material aesthetically pleasing?

1	2	3	4	5
Very Low		Neutral		Very High

2) Should the opportunity arise, how strong would your desire be to use the material?

1	2	3	4	5
Very Low		Neutral		Very High

3) To what degree does the material elicit an emotional response?

1	2	3	4	5
Very Low		Neutral		Very High

4) To what degree does the material elicit an intellectual response?

1	2	3	4	5
Very Low		Neutral		Very High

5) To what degree do you feel a sensory response to the material?

1	2	3	4	5
Very Low		Neutral		Very High

6) Overall, to what degree do you like the material?

1	2	3	4	5
Very Low		Neutral		Very High

Appendix K:
Questionnaire packets: follow-up questions page

Follow Up Questions:

1) In responding to the degree of which the materials elicited an emotional response, which of the following was the strongest determining factor for your answer?

A) past personal experience with a similar material or object
B) a sense of environmental morality
C) a sense of human morality
D) other _____
E) no overarching standard for determining answers

2) In responding to the degree of which the materials elicited an intellectual response, which of the following was the strongest determining factor for your answer?

A) if information was present
B) level of clarity of information provided
C) past personal experience with a similar material or object
D) other _____
E) no overarching standard for determining answers

3) In responding to the degree of which you felt a sensory response to the material, which of the following was the strongest determining factor for your answer?

A) interaction with the material sample
B) past personal experience with a similar material or object
C) level of clarity of information provided
D) other _____
E) no overarching standard for determining answers

Once you have completed the general participant questions, the questionnaire for each material, and the follow up questions, return this packet to the researcher (Susanne).

thank you!

Appendix L:
Research Location Photographs

Design Office

Non-Design Office A

Non-Design Office B

Appendix M:
SPSS Data for Sustainability Rating x Information Level x Design/Non-Design x Material Look Interaction at Sustainability Rating = 61

Design/Non-design Mean Estimates

Estimatesb

Design_NonDesign	InformationLevel	MaterialLook	Mean	Std. Error	df	Interval Lower Bound	Interval Upper Bound
Designer	Paragraph	Natural	3.802	.274	4.017	3.041	4.563
		Somewhat Natural	3.193	.477	3.525	1.796	4.589
		Not Natural	2.551	.592	3.448	.798	4.305
	Fact Chart	Natural	3.719	.275	4.068	2.959	4.478
		Somewhat Natural	3.388	.478	3.553	1.993	4.782
		Not Natural	3.007	.593	3.472	1.256	4.757
	None	Natural	3.963	.275	4.026	3.202	4.724
		Somewhat Natural	2.786	.477	3.527	1.390	4.182
		Not Natural	2.420	.592	3.450	.666	4.173
Non-Designer	Paragraph	Natural	3.385	.275	4.054	2.625	4.145
		Somewhat Natural	3.058	.477	3.549	1.664	4.453
		Not Natural	2.601	.593	3.470	.850	4.352
	Fact Chart	Natural	3.569	.275	4.054	2.809	4.329
		Somewhat Natural	3.683	.477	3.549	2.288	5.078
		Not Natural	2.721	.593	3.470	.970	4.472
	None	Natural	3.287	.276	4.133	2.529	4.045
		Somewhat Natural	3.140	.479	3.586	1.749	4.532
		Not Natural	2.283	.595	3.501	.535	4.030

a. Covariates appearing in the model are evaluated at the following values: SustainabilityRating = 61

b. Dependent Variable: Response.

Design/Non-design Pairwise Comparison

Pairwise Comparisonsb

Information Level	MaterialLook	(I) Design_NonDesign	(J) Design_NonDesign	Mean Difference (I-J)	Std. Error	df	Sig.a	Interval for Differencea	
								Lower Bound	Upper Bound
Paragraph	Natural	Designer	Non-Designer	.417	.149	211.447	.006	.124	.710
		Non-Designer	Designer	-.417	.149	211.447	.006	-.710	-.124
	Somewhat Natural	Designer	Non-Designer	.134	.201	677.297	.505	-.260	.529
		Non-Designer	Designer	-.134	.201	677.297	.505	-.529	.260
	Not Natural	Designer	Non-Designer	-.050	.235	1196.070	.832	-.511	.411
		Non-Designer	Designer	.050	.235	1196.070	.832	-.411	.511
Fact Chart	Natural	Designer	Non-Designer	.150	.150	211.616	.321	-.147	.446
		Non-Designer	Designer	-.150	.150	211.616	.321	-.446	.147
	Somewhat Natural	Designer	Non-Designer	-.295	.203	678.775	.146	-.694	.104
		Non-Designer	Designer	.295	.203	678.775	.146	-.104	.694
	Not Natural	Designer	Non-Designer	.286	.238	1199.015	.229	-.180	.752
		Non-Designer	Designer	-.286	.238	1199.015	.229	-.752	.180
None	Natural	Designer	Non-Designer	.676	.152	210.329	.000	.378	.975
		Non-Designer	Designer	-.676	.152	210.329	.000	-.975	-.378
	Somewhat Natural	Designer	Non-Designer	-.354	.204	667.560	.083	-.755	.046
		Non-Designer	Designer	.354	.204	667.560	.083	-.046	.755
	Not Natural	Designer	Non-Designer	.137	.238	1176.662	.566	-.331	.605
		Non-Designer	Designer	-.137	.238	1176.662	.566	-.605	.331

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

b. Dependent Variable: Response.

Appendix N:
Follow-Up Question 2 x Information Level cross-tabulation

			InformationLevel_mean			Total
			Paragraph	Fact Chart	None	
Answer to Follow-Up Question 2	A) if information was present	Count	10	5	4	19
		% within FollowUp2Intellectual_mean	52.6%	26.3%	21.1%	100.0%
		% within InformationLevel_mean	23.8%	12.5%	9.5%	15.3%
	B) level of clarity of information provided	Count	16	7	3	26
		% within FollowUp2Intellectual_mean	61.5%	26.9%	11.5%	100.0%
		% within InformationLevel_mean	38.1%	17.5%	7.1%	21.0%
	C) past personal experience with a similar material or object	Count	8	6	15	29
		% within FollowUp2Intellectual_mean	27.6%	20.7%	51.7%	100.0%
		% within InformationLevel_mean	19.0%	15.0%	35.7%	23.4%
	D) other	Count	5	10	4	19
		% within FollowUp2Intellectual_mean	26.3%	52.6%	21.1%	100.0%
		% within InformationLevel_mean	11.9%	25.0%	9.5%	15.3%
	E) no overarching standard for determining answers	Count	3	12	16	31
		% within FollowUp2Intellectual_mean	9.7%	38.7%	51.6%	100.0%
		% within InformationLevel_mean	7.1%	30.0%	38.1%	25.0%
Total		Count	42	40	42	124
		% within FollowUp2Intellectual_mean	33.9%	32.3%	33.9%	100.0%
		% within InformationLevel_mean	100.0%	100.0%	100.0%	100.0%

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